4. Alignment and Adjustment

4-1. Mechanism Alignment

- Refer to mechanical manual “DE-6 (AD68-30200A)”for the adjustment and checks of mechanism section.
- The location of test point (See Fig.1)

Test Point:
PB RF - Pin 11 of CN452
Head Switching Trigger - Pin 9 of CN452

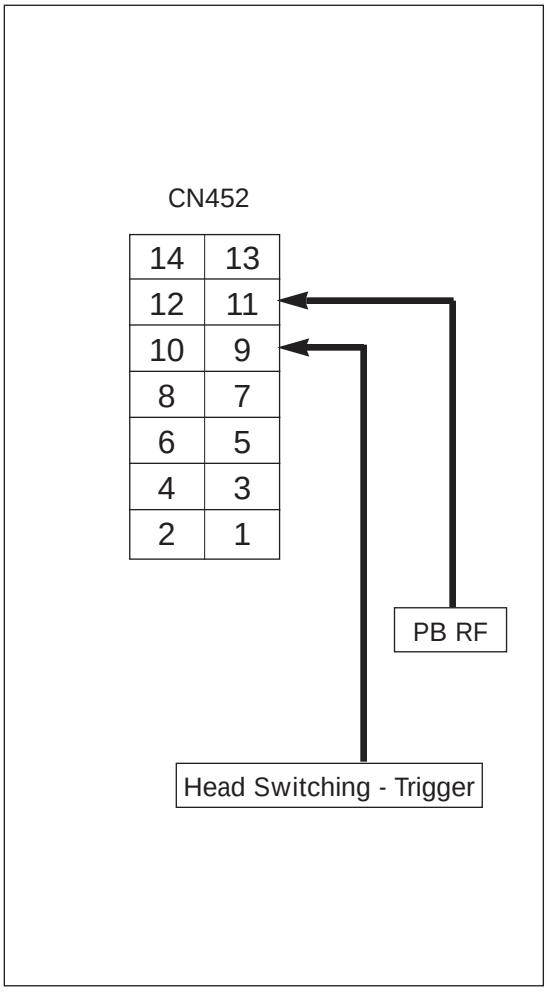


Fig. 1 Test point

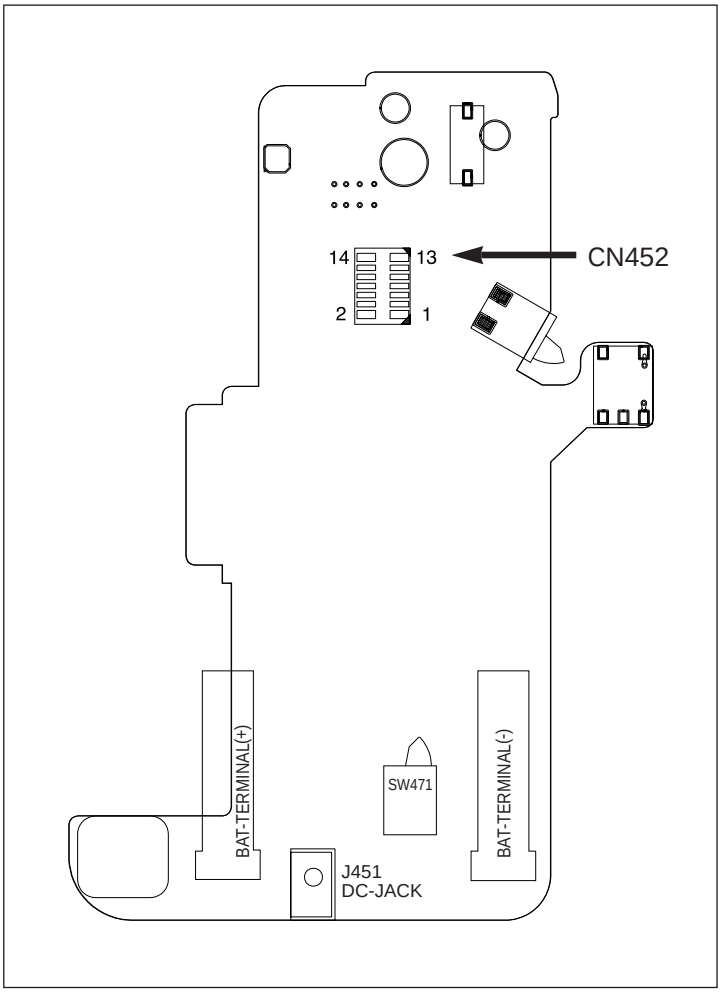
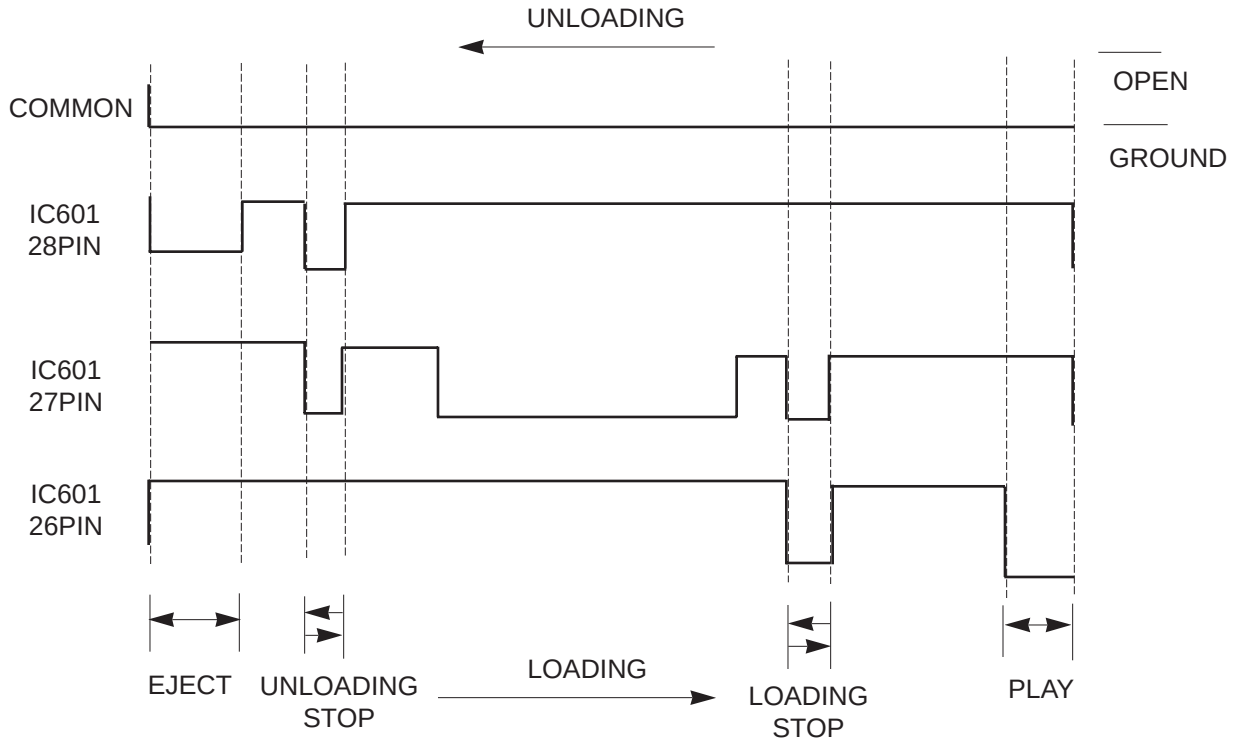


Fig. 2 Test location of test point (Rear Board)



POSITION	IC601 28PIN	IC601 27PIN	IC601 26PIN	ACTION MODE
EJECT	L	H	H	EJECT
UNLOADING STOP	L	L	H	UNLOADING STOP
LOADING STOP	H	L	L	LOADING STOP
PB	H	H	L	PLAY, FF, REW, STILL....

4-2. Camera Section Adjustment

Note :

1. This system has :

   1) EEPROM to store the confirmed adjustment data.
   2) DSP (Digital Signal Process ; ICP01 - Main board) chip to process the signal of camera parts.
   3) One test point for the frequency adjustment of DSP main clock (P. CLK).
   4) The special mode for camera adjustment using the function keys on the left case.

2. Keep in mind :

   1) All adjustment steps should performed using the function keys on the left case.

4-2-1 Preparations

1. Equipment to be used :

1) DC Power supply
2) Oscilloscope
3) Frequency counter
4) Vectorscope
5) Waveform monitor
6) Color monitor or TV
7) Various charts
   - Color bar chart
   - Gray-scale chart, etc...

2. Composition of camera P.C.Boards :

1) Main PCB 2) CCD PCB
3) CVF PCB 4) EVF PCB 5) LCD PCB

3. Adjustment preparations :

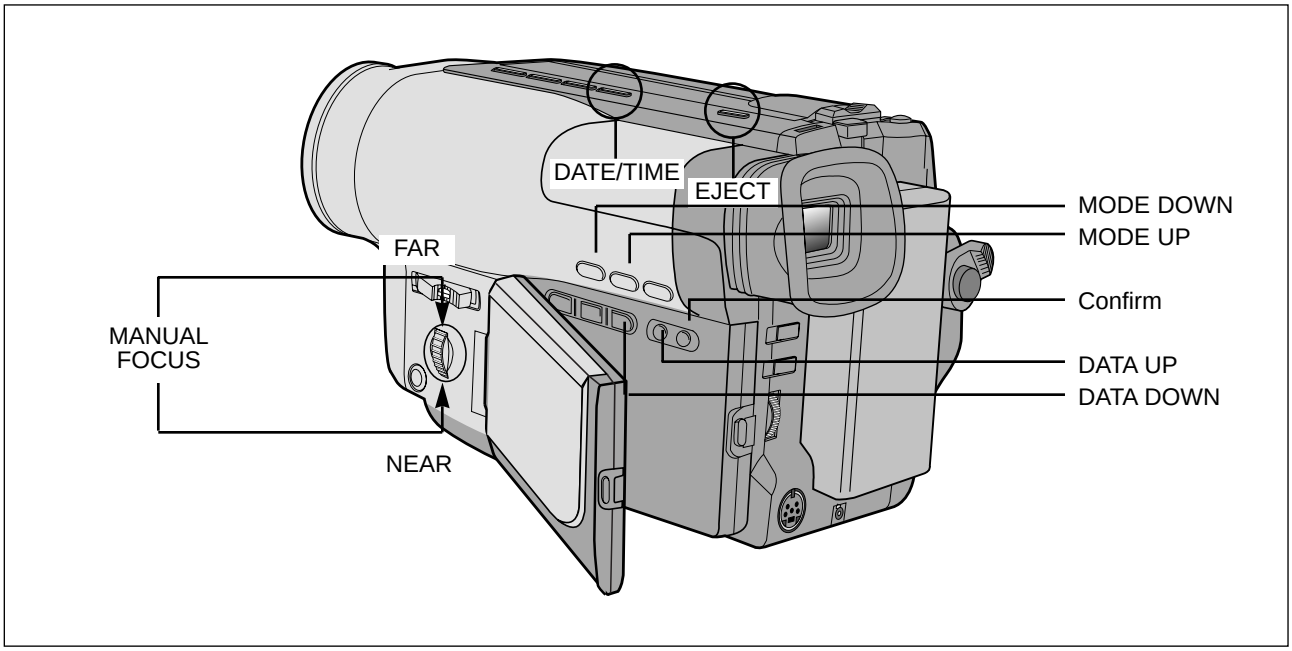
1) The function keys on the left case is used as a camera adjust tool.
2) Press the confirm button when each manual adjustment step is completed to write the adjustment data to the EEPROM.
3) After each adjustment step is completed, OSD shows “OK!”.
4) To cancel the adjustment mode, remove the power source.

4. The Function keys on the left case :

The following is a chart explaining the use of each button :

Using Button	Adjustment
PROGRAM AE (CONFIRM)	Data store after finishing adjustment by DATA UP/DOWN button.
TITLE (DATA DOWN) DSE (DATA UP)	When change data value of adjust state.
FADE (MODE UP) BLC (MODE DOWN)	Mode change.
MANUAL FOCUS RING (NEAR/FAR)	Manual focus adjustment.
ZOOM TELE ZOOM WIDE	1) Move the zoom position of lens. 2) Semi-Auto lens adjustment.

The function keys left case is required to adjust the camera section.



Note : In service adjustment mode, button names are different from those in customer camera function control mode. EX) PROGRAM AE button is the same as confirm.

5. How to get into service "**ADJUST**" mode

STEP 1

1. Remove the lithium battery from the camcorder.
2. Connect the power source (battery/ DC cable).
3. Eject the tape if it is in the unit.
4. Set the power switch of the camcorder to "CAMERA" position.
5. Set OSD on state.

STEP 2

1. Press and hold the "EJECT" button and "DATE/TIME" button on the camcorder at the same time for more than 5 seconds. Then unit goes into service mode.

STEP 3

On screen display show "0DF. T.INI XX XX" CAMERA ADJUSTMENT mode has successfully been activated.

Note : When "XX XX" is shown in service adjustment procedures, this indicates variable values.

"CAMERA ADJUST MODE, EEPROM ADDRESS SEQUENCE & DATA OF PAGE 0"

ADDR	OSD-DISPLAY				CONTENT							
0DF	T.INI				TABLE INITIAL							
0CD	HALL				HALL AUTO ADJUST							
0CE	IRIS				IRIS AUTO ADJUST							
0CF	AWB				AWB AUTO ADJUST							
0D0	LENS				LENS AUTO ADJUST(WARNING! DON'T USE WITHOUT AN INFINITE COLLIMATOR)							
0D6	ZVR.C				ZOOM LEVER CENTER DATA CHECKING							
0DB	AGCM				AGC AUTO ADJUST (NORMALLY NO USED)							
0DE	3MLENS				3M LENS AUTO ADJUST AT SERVICE FIELD (DISTANCE: 3M +/- 1Cm)							
	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
001	40	50	40	50	CDS-K=1	AGC TARGET	photo/E,ODD	WDR/NO	WDR_AE_O	KEY/RING	CAN/SECREM	ZOOM_STOP
002	00	00	00	00	@IRIS CONTROL-LOW							
003	06	06	06	06	@IRIS CONTROL-HIGH							
004	60	60	60	60	@P.CLK PWM-HIGH							
005	08	08	08	08	@UPD16835 INIT 4th							
006	55	55	55	55	@UPD16835 INIT 6th							
007	33	33	33	33	@UPD16835 INIT 7th							
008	03	03	03	03	@CDS F-REG(f1,f0) CAM : BIT0:f0,BIT1:f1							
009	A0	A0	A0	A0	@CDS F-REG(f9,f2) CAM ;PGA GAIN -HIGH(0.00dB~ 30.0dB)							
00A	60	60	60	60	changeb by AUTO HALL ADJ (0CD) ;HALL REFERENCE							
00B	3A	3A	3A	3A	changeb by AUTO HALL ADJ (0CD) ;HALL GAIN							
00C	87	87	87	87	@CDS E-R(e1,e0),J-R(j0),M-R;D0:e0,D1:e1,D2:j0(CAM),D4:e0,D5:e1,D6:j0(VCR),D7:cds-rev='1'							
00D	80	7B	77	77	@CDS F-REG(f9,f2) VCR ;PGA GAIN -HIGH(0.00dB~ 10.0dB)							
00E	00	00	00	00	@WDR REGISTER[7,0] *AEINSEL=D7,AELPFSEL=D6,X[5:0]							
00F	80	80	80	80	@WDR REGISTER[15,8] *AECLIP_TH[7:0]							
010	00	00	00	00	@WDR REGISTER[23,16] *AEL_TH[7:0]							
011	FF	FF	FF	FF	@WDR REGISTER[31,24] *AEH_TH[7:0]							
012	76	76	8B	8B	@WDR REGISTER[39,32] *AEW2VE[7:0]							
013	24	24	24	24	@WDR REGISTER[47,40] *AEW2VS[7:0]							
014	F1	F1	ED	ED	@WDR REGISTER[55,48] *AEW2HE[7:0]							
015	13	13	07	07	@WDR REGISTER[63,56] *AEW2HS[7:0]							
016	6E	6E	81	81	@WDR REGISTER[71,64] *AEW1VE[7:0]							
017	20	20	26	26	@WDR REGISTER[79,72] *AEW1VS[7:0]							
018	C1	C1	B4	B4	@WDR REGISTER[87,80] *AEW1HE[7:0]							
019	43	43	32	32	@WDR REGISTER[95,88] *AEW1HS[7:0]							
01A	30	30	30	30	@WDR REGISTER[103,96] *ALPF_THP[7:0]							
01B	7F	7F	7F	7F	@WDR REGISTER[111,104] *HLOG_ON[7],SAT_ON[6],ALPF_WTSTF[5:3],SHPF_SFT[2:0]							
01C	80	80	80	80	@WDR REGISTER[119,112] *BOUND256[7:0]							
01D	80	80	80	80	@WDR REGISTER[127,120] *BOUND128[7:0]							
01E	80	80	80	80	@WDR REGISTER[135,128] *BOUND64[7:0]							
01F	80	80	80	80	@WDR REGISTER[143,136] *BOUND32[7:0]							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
020	60	60	60	60	@WDR REGISTER[151,144] *BOUND0[7:0]							
021	3F	3F	3F	3F	@WDR REGISTER[159,152] *LTIC[3:0],CH_SEL[3:0]							
022	C7	C7	C7	C7	@WDR REGISTER[167,160] *LTI_ON[7],LSI_ON[6],LUT_TAB[5:3],LUT_HPF_SFT[2:0]							
023	1E	1A	1E	1A	@WDR REGISTER[175,168] *LUT_GAIN[7:0]							
024	04	04	04	04	@WDR REGISTER[183,176] *BACK_WT[7:4],HIST_WT[3:0]							
025	30	30	30	30	@WDR REGISTER[191,184] *EDGE_AMP[7:4],BACK_SP[3:0]							
026	D0	D0	D0	D0	@WDR REGISTER[199,192] *LP_V[7:0] ACTIVE AREA VERTICAL LENGTH							
027	24	24	24	24	@WDR REGISTER[207,200] *SP_V[7:0] ACTIVE AREA VERTICAL START							
028	B0	B0	B0	B0	@WDR REGISTER[215,208] *LP_H[7:0] ACTIVE AREA HORIZENTAL LENGTH							
029	30	30	30	30	@WDR REGISTER[223,216] *SP_H[7:0] ACTIVE AREA HORIZENTAL START							
02A	00	00	00	00	@WDR REGISTER[231,224] *POFFSET[7:0]							
02B	00	00	00	00	@WDR REGISTER[239,232] *CMP_ADJ[7:4],SP_ADJ[3:0]							
02C	57	57	57	57	@WDR REGISTER[247,240] *CLPEN[7],SORSL[6],V1_EXIST[5],GR_MODE[4:3],GRB_MODE[2:0]							
02D	01	01	01	01	@WDR REGISTER[255,248] *OUT_MODE[7:5],DLY_MODE[4:0]							
02E	50	50	50	50	@WDR ON BLACK BALANCE MAX-DATA (MIN DATA+31)							
02F	04	04	08	08	@WDR ON Y,C GAMMA 1							
030	07	07	0D	0D	@WDR ON Y,C GAMMA 2							
031	15	15	1B	1B	@WDR ON Y,C GAMMA 3							
032	2C	2C	32	32	@WDR ON Y,C GAMMA 4							
033	4D	4D	57	57	@WDR ON Y,C GAMMA 5							
034	70	70	82	82	@WDR ON Y,C GAMMA 6							
035	B4	B4	C0	C0	@WDR ON Y,C GAMMA 7							
036	F8	F8	F0	F0	@WDR ON Y,C GAMMA 8							
037	99	99	99	99	@WDR ON ADDR#12C ;YVBKT,YVBK,HBLK,YHBK							
038	03	08	03	08	@WDR ON ADDR#123;YHPSC,YAPC							
039	E0	E0	E0	E0	@WDR ON ADDR#126;YLPFSEL							
03A	10	10	10	10	@WDR ON ADDR#134;RED DARK SLICE							
03B	F8	F8	F8	F8	@WDR ON ADDR#135;BLUE DARK SLICE							
03C	00	00	00	00	@WDR ON ADDR#136;GREEN DARK SLICE							
03D	D0	D0	D0	D0	@WDR ON, AE A-READ(SMALL)DATA CUTTING -HIGH							
03E	01	01	01	01	@WDR ON, AE A-READ(SMALL)DATA CUTTING -LOW							
03F	80	80	80	80	@WDR ON, AE DATA CUTTING -LOW							
040	02	02	02	02	@WDR ON, AE DATA CUTTING -HIGH							
041	D0	D0	D0	E0	@AE TARGET-LOW BYTE							
042	00	00	00	00	@AE TARGET-HIGH BYTE							
043	48	48	48	48	@AETAR L (FLEX-ZONE)							
044	00	00	00	00	@AETAR H (FLEX-ZONE)							
045	00	00	00	00	@BLC/WDR , AE TARTGET 'L'							
046	02	02	02	02	@BLC /WDR, AE TARTGET 'H'							
047	00	00	00	00	@SAND&SNOW MODE AE TARGET 'L'							
048	02	02	02	02	@SAND&SNOW MODE AE TARGET 'H'							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
049	50	50	50	50	@NEGA BLC TARGET-'L'							
04A	00	00	00	00	@NEGA BLC TARGET-'H'							
04B	5E	5E	5E	5E	@SPOTLIGHT AE-TARGET 'L'							
04C	00	00	00	00	@SPOTLIGHT AE-TARGET 'H'							
04D	B0	B0	B0	B0	WDR AE TARGET -LOW							
04E	00	00	00	00	WDR AE TARGET-HIGH							
04F	04	04	04	04	@AE A-WINDOW WEIGHT VALUE '05'=50%							
050	E0	E0	E0	E0	SHUTTER START POINT OF IRIS CONTROL PERCENT(FF=100% IRIS MAX)							
051	50	30	50	50	AGC TARGET DOWN VALUE AT 001H D6='1' OPTION							
052	00	00	00	00	AGC MAX, DARK SLICE-B CONTROL							
053	90	90	90	90	@DIGITAL CLAMP CONTROL START AGC							
054	A0	A0	A0	A0	@ CHROMA SUPPRESS PERCENT							
055	48	48	48	48	@ CHROMA SUPPRESS START AGC VALUE							
056	48	48	48	48	@ NOISE SLICE START AGC VALUE							
057	10	0B	10	15	@ Y_H_POSI_GAIN(DSP #121 D4:D0) MIN AT AGC MAX (MAX=1F)							
058	18	0B	00	18	@ Y_V_POSI_GAIN(DSP #122 D4:D0) MIN AT AGC MAX (MAX=1F)							
059	30	18	3F	18	@ NOISE SLICE(DSP #123 D5:D0) MIN AT AGC MAX (MAX=3F)							
05A	08	00	0C	00	@AGC MAX, DIGITAL CLAMP CONTROL(ADDR,#118-#05A)							
05B	05	00	00	15	@ Y_H_NEGATIVE_GAIN(DSP #12C D7:D3) MIN AT AGC MAX (MAX=1F)							
05C	08	00	00	16	@ Y_V_NEGATIVE_GAIN(DSP #12D D7:D3) MIN AT AGC MAX (MAX=1F)							
05D	25	25	25	25	@ Y_H_NEGATIVE_GAIN(DSP #12C D7:D3) MIN AT AGC MAX (MAX=1F)							
05E	40	40	40	40	* AE SPOTLIGHT MODE CONTROL SPEED DOWN RANGE							
05F	04	04	04	04	* AE AUTO MODE CONTROL SPEED DOWN REFERENCE							
060	24	24	24	24	* AE OFFSET BORDER							
061	0C	0C	0C	0C	* AE SPPED OFFSET COUNTER							
062	50	47	60	53	*AWB;	@R-GAIN POSITIVE OUTDOOR						
063	4A	45	50	50	*AWB;	@R-GAIN NEGATIVE OUTDOOR						
064	28	19	2C	1F	*AWB;	@R-HUE POSITIVE OUTDOOR						
065	35	30	3B	28	*AWB;	@R-HUE NEGATIVE OUTDOOR						
066	31	2D	39	33	*AWB;	@B-GAIN POSITIVE OUTDOOR						
067	2C	22	30	29	*AWB;	@B-GAIN NEGATIVE OUTDOOR						
068	26	1E	1A	26	*AWB;	@B-HUE POSITIVE OUTDOOR						
069	1C	11	20	0E	*AWB;	@B-HUE NEGATIVE OUTDOOR						
06A	C0	C0	C0	C0	@WB AGC% , STOP POINT (80=50%, C0=75%)							
06B	B4	B4	B4	B4	WB;AT OUTDOOR, INDOOR DATA INPUT CONDITION TRACKING VALUE ,B4=70%,FF=0%(NO TRACKING)							
06C	02	02	02	02	WB;Y AREA SELECTION NUMBER							
06D	05	05	05	05	WB;AWB RATIO 1/3 CENTER TRACKING							
06E	03	03	03	03	AWB RATIO HIGH , CENTER AXIAL OF OVER 5100K COLOR TEMPERATURE							
06F	04	04	04	04	AWB RATIO LOW ,CENTER AXIAL OF BELOW 3100K COLOR TEMPERATURE							
070	00	03	01	03	W/B R-CTRL COMPENSATION (D7='1' ;DECREASE ,'0'= INCREASE FROM W/B TARGET)							
071	82	82	80	83	W/B R-CTRL COMPENSATION (D7='1' ;DECREASE ,'0'= INCREASE FROM W/B TARGET)							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
072	80	8A	80	8A	OUTDOOR DECISION BY HALL VALUE							
073	70	60	70	60	AWB;AWB TRACKING HALL2(WB TRACKING AVAILABLE BETWEEN #072~#072-#073)							
074	04	07	06	04	W/B TRACKING AREA SELECT							
075	0C	0C	0C	0C	WB STABLE MODE THRESHOLD							
076	10	10	10	10	|---- AWB CUTTING THRESHOLD1					Y LEVEL INTERVAL		----|
077	10	10	10	10	|---- AWB CUTTING THRESHOLD2					TOP LEVEL INTERVAL		----|
078	40	40	40	40	|---- AWB CUTTING THRESHOLD3					R CONTROL LOW MARGIN		----|
079	40	40	40	40	|---- AWB CUTTING THRESHOLD4					DATA CUT LOW		----|
07A	00	00	00	00	|---- AWB CUTTING THRESHOLD1					DATA CUT HIGH		----|
07B	60	6A	60	6A	* AWB HALL STOP AT SPOLTLIGHT MODE							
07C	80	8A	80	8A	* AWB HALL AT EIS MODE							
07D	F0	F0	F0	F0	* AWB HALL STOP AT SPORTS/PORTRAIT/SAND&SNOW/HSS MODE							
07E	F4	F4	F4	F4	@D/ZOOM RATIO MAX DATA(80:2 TIMES, CO:4 TIMES, F4:20 TIMES)							
07F	17	17	1B	1B	ZOOM MAX SPEED ;22X LENS PAL:1BH ,NTSC:17H)							
080	07	07	09	09	REMCON ZOOM SPEED X22 PAL:09 NTSC:07)							
081	0A	00	09	F8	@CCD H-PIXEL NUMBER -LOW BYTE							
082	02	03	02	02	@CCD H-PIXEL NUMBER -HIGH BYTE							
083	F7	F7	23	23	@CCD V LINE NUMBER -LOW BYTE 1/2							
084	00	00	01	01	@CCD V LINE NUMBER -HIGH BYTE 1/2							
085	09	09	0C	0C	@V SKIP LINE NUMBER							
086	00	11	00	00	DIS;VMX,VMY MAX-#086 (11:NTSC HI-8, 00:ETC)							
087	00	00	00	00	@CCD V LINE NUMBER HIGH BYTE							
088	1D	1D	1D	1D	@DSP IC ADDR #39H ;MOSAIC SIZE					:VTR		
089	98	98	98	98	@DSP IC ADDR #41H ;ART DSE LEVEL					:VTR		
08A	B8	B8	B8	B8	@DSP IC ADDR #1CH ;NEGA MODE WHITE CLIP LEVEL					:VTR		
08B	75	75	75	75	@SEPIA CDS-R							
08C	3A	3A	3A	3A	@SEPIA CDS-G							
08D	10	10	11	11	@CINEMA F-ZONE LIMIT UP							
08E	68	68	7D	7D	@CINEMA F-ZONE LIMIT UP							
08F	01	01	01	01	@DSP IC ADDR #00H ;EMODE,CINEMA					:VTR		
090	88	88	88	88	@DSP IC ADDR #07H ;ADCLDEL. DSCKDEL,FWCKDLY					:VTR		
091	2E	2E	1B	1B	@DSP IC ADDR #08H ;HCNTSET					:VTR		
092	00	00	00	00	@DSP IC ADDR #0AH ;DCKSEL,VCNTSET					:VTR		
093	4A	4C	4B	4A	@DSP IC ADDR #10H ;C-SYNC					:VTR		
094	CE	CE	DB	D8	@DSP IC ADDR #14H ;EUSC(B-Y) BURST					:VTR		
095	00	00	24	28	@DSP IC ADDR #15H ;EVSC(R-Y)BURST					:VTR		
096	77	77	77	77	@DSP IC ADDR #20H ;YVBTH,YVBKG,YHBKTH,YHBKG					:VTR		
097	B8	B8	B8	B8	@DSP IC ADDR #28H ;VCR_ADJ,WHITE LEVEL					:VTR		
098	7F	7F	7F	7F	@DSP IC ADDR #47H ;CRYGP					:VTR		
099	7F	7F	7F	7F	@DSP IC ADDR #48H ;CRYGN					:VTR		
09A	7F	7F	7F	7F	@DSP IC ADDR #4BH ;CRYGP					:VTR		

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
09B	7F	7F	7F	7F	@DSP IC ADDR #4CH ;CRYGN :VTR							
09C	80	80	80	80	@DSP IC ADDR #4FH ;C-GAIN VCR-PLAY MODE :VTR							
09D	80	80	80	80	@DSP IC ADDR #4FH ;C-GAIN at color bar generation :VTR							
09E	00	00	00	00	@DSP IC ADDR #13H ;VTR MOD EYDEL,UV-CTL,EBURST_H :VTR							
09F	50	50	50	50	@DSP IC ADDR #32H ;VTR MODE EMBOO/PASTEL Y-LEVEL :VTR							
0A0	00	00	1E	1E	@DSP IC ADDR #1DAH ;RPS MODE HEAD SWITCHING POINT :VTR							
0A1	0A	0A	0A	0A	@DSP IC ADDR #121,122[D4:D0],12C,12D[D7:D3];H,V POSI/NEGA GAIN :VTR							
0A2	05	05	7B	05	@DSP IC ADDR #10A, RFSΩ√ CONTROL :VTR							
0A3	0B	0B	0B	0B	@DSP IC ADDR #18FH ;RPS/FPS MODE :VTR							
0A4	E0	E0	E1	E1	@DSP IC ADDR #1DEH ;RPS/FPS MODE :VTR							
0A5	47	47	47	47	@DSP IC ADDR #1F0H ;RPS/FPS MODE :VTR							
0A6	FC	FC	FC	FC	changed by AUTO LENS ADJ(0D0, 0DE)	@FOCUS TELE MARGIN LOW BYTE(CANON X22 LENS)						
0A7	FF	FF	FF	FF	changed by AUTO LENS ADJ(0D0, 0DE)	@FOCUS TELE MARGIN HIGH BYTE(CANON X22 LENS)						
0A8	05	05	05	05	changed by AUTO LENS ADJ(0D0, 0DE)	@FOCUS WIDE MARGIN LOW BYTE(CANON X22 LENS)						
0A9	00	00	00	00	changed by AUTO LENS ADJ(0D0, 0DE)	@FOCUS WIDE MARGIN HIGH BYTE(CANON X22 LENS)						
0AA	BD	BD	BD	BD	changed by AUTO LENS ADJ(0D0, 0DE)	@FOCUS RESET LOW(16X,22X LENS)						
0AB	81	81	81	81	changed by AUTO LENS ADJ(0D0, 0DE)	@FOCUS RESET HIGH(16X,22X LENS)						
0AC	26	26	26	26	changed by AUTO LENS ADJ(0D0, 0DE)	@ZOOM RESET LOW(16X, 22X LENS)						
0AD	87	87	87	87	changed by AUTO LENS ADJ(0D0, 0DE)	@ZOOM RESET HIGH(16X, 22X LENS)						
0AE	07	07	07	07	@LENS CHECK WIDE 1 END DIFFERENCE							
0AF	0E	0E	0E	0E	@LENS CHECK WIDE 2 DIFFERENCE							
0B0	0E	0E	0E	0E	@LENS CHECK MIDDEL 1 DIFFERENCE							
0B1	20	20	20	20	@LENS CHECK MIDDLE 2 DIFFERENCE							
0B2	30	30	30	30	@LENS CHECK TELE 1 DIFFERENCE							
0B3	40	40	40	40	@HALL CLOSE TARGET							
0B4	65	65	65	65	@IRIS CONTROL AT ADJUSTMENT ;UPPER 8 BIT							
0B5	B0	B0	B0	B0	changed by AUTO IRIS ADJ(0CE)	@IRIS CONTROL MIN LOW BYTE						
0B6	09	09	09	09	changed by AUTO IRIS ADJ(0CE)	@IRIS CONTROL MIN HIGH BYTE						
0B7	80	80	80	80	changed by ZOOM VR CENTER (0D6)	@ZOOM VR CENTER VALUE						
0B8	20	20	20	20	@ZOOM VR CENTER MARGEIN							
0B9	60	5B	58	68	@0DB; AGC MIN ADJ SHUTTER CONTROL VALUE (UPPER BIT='0'FIX)							
0BA	01	08	2B	2A	@0DB; AGC MAX ADJ SHUTTER CONTROL VALUE (UPPER BIT='1'FIX)							
0BB	A0	A0	68	68	AGC ADJ. SHUTTER CONTROL VALUE FOR FIND FIRST TARGET							
0BC	30	34	30	34	changed by AUTO AGC ADJ(0DB)	@AGC MIN						
0BD	A8	A8	A8	A8	changed by AUTO AGC ADJ(0DB)	@AGC MAX						
0BE	89	89	89	89	@HALL WIDTH							
0BF	3A	3A	3A	3A	@HALL REF. START							
0C0	4C	4C	4C	4C	@HALL GAIN. START							
0C1	40	40	40	40	changed by AUTO HALL ADJ(0CD)	@HALL MIN						
0C2	C0	C0	C0	C0	changed by AUTO HALL ADJ(0CD)	@HALL MAX						
0C3	94	94	94	94	@FOCUS LOW							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
0C4	83	83	83	83	@FOCUS HIGH							
0C5	FD	FD	FD	FD	@ZOOM LOW							
0C6	87	87	87	87	@ZOOM HIGH							
0C7	00	00	00	00	changed by AUTO IRIS ADJ(0CE)			@ IRIS CONTROL MAX LOW BYTE				
0C8	05	05	05	05	changed by AUTO IRIS ADJ(0CE)			@ IRIS CONTROL MAX HIGH BYTE				
0C9	32	3B	3F	31	changed by AUTO WB ADJ(0CF)			R-COLTROL 3100K :INDOOR				
0CA	9B	87	93	A0	changed by AUTO WB ADJ(0CF)			B-COLTROL 3100K :INDOOR				
0CB	60	6B	71	5F	changed by AUTO WB ADJ(0CF)			R-COLTROL 5100K : OUTDOOR				
0CC	5A	58	55	5A	changed by AUTO WB ADJ(0CF)			B-COLTROL 5100K : OUTDOOR				
0CD	FF	FF	FF	FF	@@HALL AUTO ADJUST							
0CE	FF	FF	FF	FF	@@IRIS AUTO							
0CF	FF	FF	FF	FF	@@W/B AUTO							
0D0	FF	FF	FF	FF	@@LENS AUTO							
0D1	FF	FF	FF	FF								
0D2	FF	FF	FF	FF	@@ AGC CHECK PAL:68H,NTSC:80H							
0D3	FF	FF	FF	FF	@@LENS CHECK							
0D4	FF	FF	FF	FF	@ WIDE END ZOOM POSITION & ONE AF MODE							
0D5	FF	FF	FF	FF	@@GYRO SENSOR CHK2							
0D6	FF	FF	FF	FF	@@ZOOM VR CENTER ADJT							
0D7	01	01	01	01	@@ZOOM/FOCUS CHK=ONE AF ENABLE BIT 00~03							
0D8	FF	FF	FF	FF								
0D9	FF	FF	FF	FF	@@COLOR ADJUST							
0DA	FF	FF	FF	FF	@@SETUP AUTO							
0DB	FF	FF	FF	FF	@AGC AUTO							
0DC	FF	FF	FF	FF	@LENS ZOOMTRACK CHECK							
0DD	FF	FF	FF	FF								
0DE	FF	FF	FF	FF	@LENS 3M ZOOMTRACK ADJ. = SERVICE MODE							
0DF	A0	A0	A0	A0	@EEPROM -TABLE -INITIAL ('99'+CONFIRM =EXCEPT(#0E0~0FF), 'AA'=ALL DATA INITIAL)							
0E0	3B	7F	33	77	V.LIGHT	XDR	DIS	PIP	CVF/EVF	HI8	PBDSE	S/SHOT
@MODEL DATA : FIXED BY MODEL												
0E1	C4	C4	C4	C4	--------VCR DATA[1] @SPECIAL MODEL-DATA							
0E2	85	85	85	85	--------VCR DATA[2] @HD SW PULSE							
0E3	8B	8B	8B	8B	--------VCR DATA[3] COLOR BAR PATTERN GENERATION Y LEVEL							
0E4	BB	BC	B6	BC	--------VCR DATA[4] @Y-EMPHASIS(NOR)							
0E5	94	70	9B	70	--------VCR DATA[5] @PB Y LEVEL(NOR)							
0E6	BF	CE	BF	CE	--------VCR DATA[6] @Y-EMPHASIS(HI8)							
0E7	60	60	60	60	--------VCR DATA[7] @PB Y LEVEL(HI8)							
0E8	80	80	80	80	--------VCR DATA[8] *.@DSP IC ADDR #29H ;YGAIN VCR-PLAY MODE							
0E9	7F	7F	87	7F	--------VCR DATA[9] @Y FM CARRIER(NOR)							
0EA	83	83	81	81	--------VCR DATA[10] @Y FM DEVIATION(NOR)							
0EB	73	73	73	73	--------VCR DATA[11] @Y FM CARRIER(HI8)							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
0EC	93	93	93	93	--------VCR DATA[12] @Y-FM DEVIATION(HI8)							
0ED	65	65	65	65	--------VCR DATA[13] @BPF ADJ							
0EE	CD	A9	CD	CD	--------VCR DATA[14] @C-EMPHASIS							
0EF	80	80	80	80	--------VCR DATA[15] @WHITE CLIP(NOR)							
0F0	B0	C0	99	D0	--------VCR DATA[16] @REC C LEVEL							
0F1	C9	A8	C9	A8	--------VCR DATA[17] @REC Y FM LEVEL							
0F2	65	85	65	85	--------VCR DATA[18] @PB DELAY ADJUST							
0F3	65	65	65	65	--------VCR DATA[19] @D CLIP(NOR)							
0F4	85	85	85	85	--------VCR DATA[20] @DEL ADJ							
0F5	99	90	99	90	--------VCR DATA[21] @SMEAR CONT							
0F6	D0	D0	D0	D0	--------VCR DATA[22] @MTG(PB)							
0F7	7A	7A	7A	7A	--------VCR DATA[23] @MTFO(NOR)							
0F8	65	60	55	55	--------VCR DATA[24] @WHITE CLIP (HI8)							
0F9	9A	9A	9A	9A	--------VCR DATA[25] @MTFO(HI8)							
0FA	8E	8E	8E	8E	--------VCR DATA[26] @D-CLIP(HI8)							
0FB	00	00	00	00	--------VCR DATA[27] @TITLE LANGUAGE							
0FC	02	02	02	02	--------VCR DATA[28] @CUSTOM - 1 :MODE BACKUP DSE='00', D/Z&EIS='01' ..							
0FD	0C	0C	0C	0C	--------VCR DATA[29] @HEAD SWITCHING POINT(SUB DATA)							
0FE	91	91	91	91	--------VCR DATA[30] @BATTERY END LEVEL							
0FF	FF	FF	FF	FF	--------VCR DATA[31] @ATF REFERENCE							
“CAMERA ADJUST MODE, EEPROM ADDRESS SEQUENCE & DATA OF PAGE 1”												
					CLUSTER 0 (HEADER[3:0] = 4'b0000) TG/SHUTTER							
100	00	00	00	00	EMODE(2:0)='000'internal reset			VSKIP='0'	CINEMA ='0'	NDTEST	DSYNC	JITNSYNC
101	80	80	80	80	ADCK	FWCK	SCK	LALT	HSP	DOSEL	CLP='0'	X
102	C0	C0	C0	C0	SHTR='11' HSS		H2DEL(3:0) 0~15nSEC DELAY ADJUST				PBLK_SEL	HSSC(8)
103	00	00	00	00	|---- HIGH SHUTTER SPEED CONTROL (7:0) ----|							
104	07	0C	07	0C	|---- GHDLY(7:0) -128 ~+ 127 ----|							
105	02	00	00	00	|---- H1DLY[3:0] 0~+15nS ----|				|---- RGDLY[3:0] -8~+7nS ----|			
106	2C	4E	19	68	|---- SHP_DLY[3:0] -8~+7nS				|---- SHD_DLY[3:0] -8~+7nS ----|			
107	40	60	50	60	FLALTSEL	ADCKDLY[2:0] 0~+7nS			DSCKSEL	FWCKDLY[2:0] 0~+7nS		
108	0D	0D	0D	0D	|---- HCNTSET[7:0] '00' PROHIBIT ----|							
109	00	00	00	00	|---- LSSC[7:0] low speed shutter ----|							
10A	00	00	00	00	DCKSEL	|---- VCNTSET[6:0] ----|						
10B	00	00	00	30	CLP1-ADJ(2:0): -2~+2CK CLP1 ADJ			X	X	X	X	X
10C	03	05	05	05	X	X	X	X	PSEUDO	EBFDLY[2:0] BURST FLAG DELAY		
10D	1B	1B	1F	1F	|---- FHCNTSET[7:0]; INTERNAL JITER FREE SYNC SIGNAL DELAY DAJUST(AFTER TBC) ----|							
10E	00	00	00	14	PBLK	X	SHP PULSE WIDTH[2:0]			SHD PULSE WIDTH[2:0]		
10F	00	00	00	00	|---- ONEH_P [3:0] ----|				|---- ONEH_N [3:0] ----|			
					CLUSTER 1 (HEADER[3:0] = 4'b0001) ENCODER/ DEFECT ADJUST							
110	4A	4C	4B	4A	|---- C-SYNC[7:0] c.sync level 0~255 *EEPROM EMPTY ? ----|							
111	00	01	01	03	|---- SETUP[7:0] setup level 0~255 ----|							
112	00	00	00	00	|---- EBURST[7:0] burst phase ADJ:360deg./2047 control :NTSC only ----|							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
113	00	40	00	20	ROM TEST	E			UV_CTRL	|----	EBURST_H[2:0]	----|
114	CC	C8	D8	D8	|---- EUSC[7:0] -128~+127 of B-Y(U) BURST VALUE							----|
115	00	00	28	28	|---- EVSC[7:0] -128~+127 of R-Y(V) BURST VALUE							----|
116	02	02	02	02	X	EZBRT[1:0];BIGHT OF WINDOW		EZONE	X	A/D-DIRECT	EXTDAC	PD1
117	03	03	03	03	X	X	AD[1:0] AD CLK DLY		D-CLP	S2:GISS COMP.	S1	S0
118	08	00	0D	00	|----- CLAMP_OFFSET[7:0]							----|
119	30	30	30	30	|----- DEFECT_THRESHOLD[7:0] 0~255							----|
11A	00	00	00	00	X	X	X	X	RAM-OUT	|----	RAM-OUT[8:6]	
11B	00	00	00	00	|---- RAM-OUT[5:0]					----|	RAM-OUT[9:8]	
11C	00	00	00	00	|---- RAM-OUT[7:0]							----|
11D	00	00	00	00	X	|---- PFINDCNT[6:0]						----|
11E	0A	0A	0A	0E	DUMMY	W/B;INTERVAL OF AREA(SECTOR) FROM CENTER CENTER						
11F	F0	F0	F0	F0	*DIS;WIGHT WHEN DATA INCREASE							
					CLUSTER 2 (HEADER[3:0] = 4'b0010) LUMINANCE							
120	66	76	66	66	YVBKTH[1:0]		YVBKG[1:0]		YHBKTH[1:0]		YHBKG[1:0]	
121	10	D9	10	D9	Y_H_GAIN[1:0]		X	|---- Y_H_POSI_GAIN[4:0]				----|
122	58	94	58	D8	Y_L_GAIN[1:0]		YOLD-GAMMA	|---- Y_V_POSI_GAIN[4:0]				----|
123	02	02	03	03	X	X	|---- YA_NOISE_SLICE[5:0]					----|
124	B0	A0	B0	C0	|---- YHL_SC[7:0]							----|
125	FF	37	FF	FF	|---- YEDGE_SC[7:0]							----|
126	E0	E0	E0	E0	YVAPPSEL	YEGCS	YHLCS'1'=ON	YLPFSEL[1:0];00,01,10		|----	YSCDLY[2;0]	----|
127	30	0A	30	0A	|---- YHINS[6:0] aperture noise slice level after GAMMA.						----|	YNEGA/POSI
128	D0	DE	D8	E0	|---- YWC[7:0]			*EEPROM EMPTY ?				----|
129	8A	8A	8E	90	|---- YGAIN[7:0] X0~X2							----|
12A	00	00	00	00	X	YENHANTH[2:0]			X	X	YENHANG[1:0]	
12B	00	00	06	00	|---- YART[2:0] ----|		|---- YHI-A-GAIN[4:0]					----|
12C	57	AF	61	AF	|---- HAPGN[4:0]				----|	YHCLIP[3:2]		H_C_SUP[4]
12D	A1	81	B1	C8	|---- VAPGN[4:0]				----|	YHCLIP[1:0]		E_C_SUP[4]
12E	80	88	80	80	H_C_SUPP_GAIN[3:0]high light color suppress slope				F_FALL[3:0] edge color suppress			
12F	58	50	58	50	|---- Y_APERTUTR_CLIP[7:0]							----|
					CLUSTER 3 (HEADER[3:0] = 4'b0011) LUMINANCE & CHROMA							
130	20	20	20	20	YHPEG[1:0]		YVPEG[1:0]		YHEMBSEL[1:0]		YVEMBSEL[1:0]	
131	30	30	30	30	|---- YPST[7:0] pastel level							----|
132	30	30	30	30	|---- YEMB[7:0] embossing level							----|
133	00	00	00	00	X	GYDLY[2:0];LINE-INPUT MODE			YEMBOSS	YPASTEL	YIN-OUT	YWINDOW
134	0A	05	04	09	|---- CRDS[7:0] r-dark-slice							----|
135	FA	FE	07	00	|---- CBDS[7:0] b-dark-slice							
136	FE	00	00	00	|---- CGDS[7:0] g-dark-slice							
137	36	3A	34	31	|---- CRWB[7:0] R-white-balance-control							
138	8F	8F	8C	90	|---- CBWB[7:0] B-white-balance-control							
139	24	24	24	24	|---- CGWB[7:0] G-white-balance-control							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
13A	07	07	07	07	|---- CSLOPE1[7:0]COLOR_KEY_SLOPE_1;-64~+64							
13B	E6	E6	E6	E6	|---- CSLOPE2[7:0]COLOR_KEY_SLOPE_2;-64~+64							
13C	29	29	29	29	COLOR KEY DEL:0(RED)~4;13A,3B,3C ADDR				CSLOPE1 H[9]	CSLOPE1 H[8]	CSLOPE2 H[9]	CSLOPE2 H[9]
13D	00	00	00	00	X	X	BLUE-SCREEN	CNEGA	CBAR	CMONO	CKEY	CKEY-NEGA
13E	00	00	00	00	DUMMY	X	X	X	CRWB[9:8] #137		CBWB[9:8] #138	
13F	13	13	13	13	DUMMY	WDR; GRMODE(#02D) CONTROL DATA OF WDR OFF						
					CLUSTER 4 (HEADER[3:0] = 4'b0100) CHROMA							
140	37	17	07	17	X	CDEC-INSEL	CHCON(S1/S2)	CVCON(cr/cb)	CYLSEL	CRMS	CBMS	C-GAMMA-SEL
141	42	42	42	42	|---- CRCOEF[7:0] cr-matrix-coefficient ----|							
142	66	66	66	66	|---- CBCOEF[7:0] cr-matrix-coefficient ----|							
143	59	59	59	59	|---- CRRG[7:0] R-G SIGNAL COEFFECIENT FOR R-Y SIGNAL ----|							
144	D9	D9	D9	D9	|---- CBRG[7:0] R-G SIGNAL COEFFECIENT FOR B-Y SIGNAL ----|							
145	F2	F2	F2	F2	|---- CRBG[7:0] B-G SIGNAL COEFFECIENT FOR R-Y SIGNAL ----|							
146	72	72	72	72	|---- CBBG[7:0] B-G SIGNAL COEFFECIENT FOR B-Y SIGNAL ----|							
147	4F	5A	76	6B	|---- CRYGP[7:0] R-Y GAIN CONTROL + ----|							
148	5E	5F	7E	70	|---- CRYGN[7:0] R-Y GAIN CONTROL - ----|							
149	0B	16	1D	15	|---- CRYHP[7:0] R-Y HUE CONTROL + ----|							
14A	20	13	29	0F	|---- CRYHN[7:0] R-Y HUE CONTROL - ----|							
14B	35	36	3E	3D	|---- CBYGP[7:0] B-Y GAIN CONTROL + ----|							
14C	2C	26	35	29	|---- CBYGN[7:0] B-Y GAIN CONTROL - ----|							
14D	2A	2D	3C	40	|---- CBYHP[7:0] B-Y HUE CONTROL + ----|							
14E	18	06	05	01	|---- CBYHN[7:0] B-Y HUE CONTROL - ----|							
14F	80	80	80	80	|---- CGAIN[7:0] x0~ x2 ----|							
					CLUSTER 5 (HEADER[3:0] = 4'b0101) GAMMA							
150	04	04	04	04	|---- YG1[7:0] @Y GAMMA POINT 1 ----|							
151	07	07	08	08	|---- YG2[7:0] @Y GAMMA POINT 2 ----|							
152	15	15	1B	18	|---- YG3[7:0] @Y GAMMA POINT 3 ----|							
153	2C	2C	30	2E	|---- YG4[7:0] @Y GAMMA POINT 4 ----|							
154	4D	4D	4D	4E	|---- YG5[7:0] @Y GAMMA POINT 5 ----|							
155	70	70	78	73	|---- YG6[7:0] @Y GAMMA POINT 6 ----|							
156	AA	B4	B8	AB	|---- YG7[7:0] @Y GAMMA POINT 7 ----|							
157	D8	F8	D0	E0	|---- YG8[7:0] @Y GAMMA POINT 8 ----|							
158	04	04	04	06	|---- CGAMMA1[7:0] @C GAMMA POINT 1 ----|							
159	07	07	0A	0C	|---- CGAMMA2[7:0] @C GAMMA POINT 2 ----|							
15A	18	18	18	1A	|---- CGAMMA3[7:0] @C GAMMA POINT 3 ----|							
15B	30	30	2B	2C	|---- CGAMMA4[7:0] @C GAMMA POINT 4 ----|							
15C	50	50	4C	4C	|---- CGAMMA5[7:0] @C GAMMA POINT 5 ----|							
15D	78	78	78	78	|---- CGAMMA6[7:0] @C GAMMA POINT 6 ----|							
15E	B8	B8	B6	B6	|---- CGAMMA7[7:0] @C GAMMA POINT 7 ----|							
15F	F8	F8	F0	F0	|---- CGAMMA8[7:0] @C GAMMA POINT 8 ----|							
					CLUSTER 6 (HEADER[3:0] = 4'b0110) D.ZOOM & EIS							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
160	AE	AE	AE	AE	D.ZOOM	ZOOM-BYPASS	D.EFFECT	VADJ[1:0]		HADJ[1:0]		Z_DELAY
161	00	00	00	00	|---- VZOOM[7:0]							----|
162	09	09	0C		|---- VZSKIP[7:0]							----|
163	00	00	00	00	|---- VZOFFE[7:0] EVEN FIELD LINE OFFSET							----|
164	00	00	00	00	|---- VZOFFO[7:0] ODD FIELD LINE OFFSET							----|
165	00	00	00	00	|---- HZOOM[7:0]							----|
166	80	80	80	80	MOSAIC H-ADJ[1:0]		X	X	X	X	X	HZSTR[8]
167	00	00	00	00	|---- HZSTR[7:0]							----|
168	00	00	00	00	|---- HZOFS[7:0]							----|
169	00	00	00	00	|---- MOSAIC[5:0] 4d=8x8,5d=10x10,63d=126x126						----|	MOSAIC V-ADJ[1:0]
16A	02	03	02	02	FEMODE[1:0] 01=F,10=H.M		X	X	X	X	FCM[9:8]	
16B	0A	00	09	F8	|---- FCM[7:0]							----|
16C	01	01	01	01	|---- V-MOSAIC[5:0] VERTICAL MOSAIC SIZE						HMIRROR[9:8]	
16D	05	84	07	7C	|---- HMIRROR[7:0]							----|
16E	00	00	00	00	|---- CBLK-ADJ[3:0]			----|	CCIR-Y	CCIR-C	X	SCKIV
16F	01	01	01	01	DUMMY #16C:MIRROR WHEN EIS ON/OFF '0'=OFF,'1'=ON							
					CLUSTER 7 (HEADER[3:0] = 4'b0111) AF/AE							
170	05	05	06	06	|---- OAFHS-W1 @AF WINDOW 1 H-START POINT;3~252							----|
171	F3	F3	EC	EC	|---- OAFHE-W1 @AF WINDOW 1 H-END POINT;5~254							----|
172	03	03	04	04	|---- OAFVS-W1 @AF WINDOW 1 V-START POINT;3~152							----|
173	76	76	8D	8D	|---- OAFVE-W1 @AF WINDOW 1 V-END POINT;5~154							----|
174	52	52	4D	4D	|---- OAFHS-W2 @AF WINDOW 2 H-START POINT;1~254							----|
175	AC	AC	A8	A8	|---- OAFHE-W2 @AF WINDOW 2 H-END POINT;3~256							----|
176	25	25	29	29	|---- OAFVS-W2 @AF WINDOW 2 V-START POINT;1~154							----|
177	5F	5F	71	71	|---- OAFVE-W2 @AF WINDOW 2 V-END POINT;3~156							----|
178	43	43	37	37	|---- OAEHS-WA @ AE WINDOW A H-START POINT;1~254							----|
179	C1	C1	B8	B8	|---- OAEHE-WA @ AE WINDOW A H-END POINT;3~256							----|
17A	20	20	26	26	|---- OAEVS-WA @ AE WINDOW A V-START POINT;1~155							----|
17B	6E	6E	81	81	|---- OAEVE-WA @ AE WINDOW A V-END POINT;3~156							----|
17C	0A	0A	07	07	|---- OAEHS-WB @ AE WINDOW B H-START POINT;1~254							----|
17D	EE	EE	ED	ED	|---- OAEHE-WB @ AE WINDOW B H-END POINT;3~256							----|
17E	1E	1E	24	24	|---- OAEVS-WB @ AE WINDOW B V-START POINT;1~155							----|
17F	73	73	8B	8B	|---- OAEVE-WB @ AE WINDOW B V-END POINT;3~156							----|
					CLUSTER 8 (HEADER[3:0] = 4'b1000) AWB							
180	0A	0A	0A	07	|---- OAWBHS @ AWB WINDOW H-START POINT;1~254							----|
181	EE	EE	ED	ED	|---- OAWBHE @ AWB WINDOW H-END POINT;3~256							----|
182	1E	1E	24	24	|---- OAWBVS @ AWB WINDOW V-START POINT;1~155							----|
183	73	73	8B	8B	|---- OAWBVE @ AWB WINDOW V-END POINT;1~156							----|
184	FF	FF	FF	FF	|---- OYH-AE @Y-HIGH-THRESHOLD FOR AE;0~255							----|
185	00	00	00	00	|---- OYL-AE @Y-LOW -THRESHOLD FOR AE							----|
186	90	90	90	90	|---- OYH-AWB @Y-HIGH-THRESHOLD FOR AWB							----|

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
187	30	30	30	30	|---- OYL-AWB @Y-LOW -THRESHOLD FOR AWB							----|
188	C0	C0	C0	C0	|---- OAF_CLIP_TH[7:0] THRESHOLD VALUE FOR AF CLIP COUNTER							----|
189	C0	C0	C0	C0	|---- OAE_CLIP_TH[7:0] THRESHOLD VALUE FOR AE CLIP COUNTER							----|
18A	02	02	02	02	OVAF	OLPFSEL	OFILPASS	OYISEL	OAWBSEL	|----	OZNSEL[2:0]	----|
18B	00	00	00	00	X	X	X	X	ODMTST	OAWBC SEL	ORBSEL	OAWB AREA
18C	00	00	00	00	GAP_SEL [2:0]			|----	GAP_TH [4:0]			----|
18D	00	00	00	00	Q1_H [3:0] AUTO FILTER SPEED CONTROL				Q1_L [3:0] AUTO FILTER SPEED CONTROL			
18E	00	00	00	00	Q2_H [3:0] FILTER INPUT LIMIT				Q2_L [3:0] FILTER INPUT LIMIT			
18F	00	00	00	00	L9_EN1	L9_EN2	L9_EN3	GAP_EN	DOP_EN1	DOP_EN2	DOP_EN3	DOP_EN4
					CLUSTER 9 (HEADER[3:0]=4'b1001 ,AWB							
190	1F	1F	1F	1F	X	X	X	|----	ORYTH[4:0]			----|
191	1F	1F	1F	1F	X	X	X	|----	OBYTH[4:0]			----|
192	30	30	30	30	|---- OAWBSL 1[7:0]; 0~15, R-Y/B-Y CHART SLOPE 1 FOR AWB							----|
193	15	15	15	15	|---- OAWBSL 2[7:0]; 0~15, R-Y/B-Y CHART SLOPE 2 FOR AWB							----|
194	70	70	70	70	|---- OAWBSL 3[7:0]; 0~15, R-Y/B-Y CHART SLOPE 3 FOR AWB							----|
195	60	60	60	60	|---- OAWBSL 4[7:0]; 0~15, R-Y/B-Y CHART SLOPE 4 FOR AWB							----|
196	20	20	20	20	|---- OAWBSL 5[7:0]; 0~15, R-Y/B-Y CHART SLOPE 5 FOR AWB							----|
197	05	05	05	05	|---- OAWBSL 6[7:0]; 0~15, R-Y/B-Y CHART SLOPE 6 FOR AWB							----|
198	34	34	34	34	X	X	|---- OAWB_DETECT_R-Y_POINT A[5:0] ;0~63					----|
199	1C	1C	1C	1C	X	X	|---- OAWB_DETECT_R-Y_POINT B[5:0] ;0~63					----|
19A	18	18	18	18	X	X	|---- OAWB_DETECT_R-Y_POINT C[5:0]; 0~63					----|
19B	28	28	28	28	X	X	|---- OAWB_DETECT_R-Y_POINT D[5:0] ;0~63					----|
19C	18	18	18	18	X	X	|---- OAWB_DETECT_B-Y_POINT A[5:0] ;0~63					----|
19D	28	28	28	28	X	X	|---- OAWB_DETECT_B-Y_POINT B[5:0] ;0~63					----|
19E	1E	1E	1E	1E	X	X	|---- OAWB_DETECT_B-Y_POINT C[5:0]; 0~63					----|
19F	16	16	16	16	X	X	|---- OAWB_DETECT_B-Y_POINT D[5:0] ;0~63					----|
					CLUSTER 10 (HEADER[3:0] = 4'b1010) AF DATA1							
1A0	08	08	08	08	* VCR MODE NOISE SLICE(#123)							----|
1A1	02	02	02	02	* VCR MODE PB LPF(#126)							----|
1A2	10	10	10	10	* VCR MODE RPS/FPS LOCK SPEED(#1D7)							----|
1A3	07	09	07	09	* VCR MODE NORMAL DELAY(#1FC)							----|
1A4	00	00	00	00	* CDS IC A REG AT VCR MODE							----|
1A5	01	02	02	02	D.ZOOM ON, DSP #123 CONTROL DATA							----|
1A6	D9	DB	5E	DB	D.ZOOM ON, DSP #121 CONTROL DATA							----|
1A7	9A	99	5F	D9	D.ZOOM ON, DSP #122 CONTROL DATA							----|
1A8	9F	BF	AF	BF	D.ZOOM ON, DSP #12C CONTROL DATA							----|
1A9	00	00	00	00	* STILLOFFSET AT PB MODE							----|
1AA	80	80	80	80	* D/ZOOM ON START POSITION-LOW BYTE OF WIDE IMAGE COMPENSATION							----|
1AB	87	87	87	87	* D/ZOOM ON START POSITION-HIGH BYTE OF WIDE IMAGE COMPENSATION							----|
1AC	00	00	00	00	* D/ZOOM ON END POSITION-LOW BYTE OF WIDE IMAGE COMPENSATION							
1AD	85	85	85	85	* D/ZOOM ON END POSITION-HIGH BYTE OF WIDE IMAGE COMPENSATION							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
1AE	1A	1A	1A	1A	* D/ZOOM RATIO OF WIDE IMAGE COMPENSATION							
1AF	12	04	04	04	ADDR. #228 FIELD-'H',EDGE CHROMA SUPP.ON(ADDR.#201 D4='1') ,ADDR.#223 DATA =10 B/B							
					CLUSTER 11 (HEADER[3:0] = 4'b1011) ,AF DATA2							
1B0	04	10	10	10	ADDR.#229 FIELD-'H',EDGE CHROMA SUPP.ON(ADDR.#201 D4='1')							----|
1B1	12	00	00	00	ADDR.#228 FIELD-'L',EDGE CHROMA SUPP.ON(ADDR.#201 D4='1')							----|
1B2	04	14	14	14	ADDR.#229 FIELD-'L',EDGE CHROMA SUPP.ON(ADDR.#201 D4='1')							----|
1B3	80	80	20	80	ADDR.#21B DATA OF FIELD-'H' WHEN PHOTO ON							----|
1B4	80	80	2F	8F	ADDR.#21B DATA OF FIELD-'L' WHEN PHOTO ON							----|
1B5	0A	0A	0B	0B	#VTR PB DSE;MOASIC,MIRROR OF COLOR , RELATED ADDR.:#09E -->#113;D3 bit							----|
1B6	80	80	1F	8C	ADDR. #21B DATA WHNE GHOST ON							----|
1B7	30	30	00	20	D/ZOOM SUB-PIXEL CONTROL(ADDR.#163) FIELD-'H' BY DSP;							----|
1B8	1B	1B	1B	1B	DIS ON XMX,XMY SETTING BY ZOOM POSITION,ADDR.#1B9,#1AE ,at WIDE END #1B8-#1AA=01hex							----|
1B9	29	29	29	29	DIS ON, TELE POSISION D/ZOOM RATIO (29 HEX= X 1.19)							----|
1BA	01	01	01	01	* CCD DEFECT AE WINDOW B HORIZENTAL START VALUE (DSP#17C , DIS#261)							----|
1BB	F4	F6	F2	F2	* CCD DEFECT AE WINDOW B HORIZENTAL END VALUE (DSP#17D , DIS#260)							----|
1BC	02	02	02	02	* CCD DEFECT AE WINDOW B VERTICAL START VALUE (DSP#17E , DIS#25F)							
1BD	77	77	8E	8E	* CCD DEFECT AE WINDOW B VERTICAL END VALUE (DSP#17F , DIS#25E)							
1BE	B1	B1	C1	B1	D.ZOOM ON, DSP #12D CONTROL DATA							
1BF	10	10	10	10	D0 BIT='0' AF1,2 DATA FOR DIS BLOCKING PGM ON,D8 BIT RPS/FPS CVF PLL LOCKING SPPED 1=OLD							
					CLUSTER 12 (HEADER[3:0] = 4'b1100); AWB/AE							
1C0	FC	FC	FB	FA	* FLEXZONE AF1 HORIZENTAL START VALUE (DSP#170 - DIS#261)							
1C1	00	00	00	00	WIDE D.ZOOM X1.1 DECREASE ZOOM POSITION-'L' POINT (00 83)OR(08 80)							----|
1C2	83	83	83	83	WIDE D.ZOOM X1.1 DECREASE ZOOM POSITION-'H' POINT (00 83)OR(08 80)							----|
1C3	50	50	50	50	WIDE D.ZOOM OFF ZOOM POSITION-'L' POINT (50 81)OR(08 80)							----|
1C4	7C	7C	7C	7C	WIDE D.ZOOM OFF ZOOM POSITION-'H' POINT (50 81)OR(08 80).7C=X1.06(0E hex)							----|
1C5	0C	0C	0C	0C	DIS;CONTROL OF AF DATA							----|
1C6	02	02	02	02	DIS;STEP OF AF DATA							----|
1C7	00	30	00	10	W/B ADJ, CENTER COMPENSATION VALUE, INDOOR R,B (EX, E4 ; R -2,B +4)							----|
1C8	F3	53	E4	21	W/B ADJ, CENTER COMPENSATION VALUE, OUT DOOR R,B (EX, E4 ; R -2,B +4)							----|
1C9	69	69	B6	B6	DIS ON, SHUTTER CONTROL VALUE							----|
1CA	30	30	00	1C	D/ZOOM SUB-PIXEL CONTROL(ADDR.#164) FIELD-'H' BY DSP;							----|
1CB	30	30	00	18	D/ZOOM SUB-PIXEL CONTROL(ADDR.#163) FIELD-'L' BY DSP;							----|
1CC	30	30	00	14	D/ZOOM SUB-PIXEL CONTROL(ADDR.#164) FIELD-'L' BY DSP;							----|
1CD	02	02	02	02	@VTR ;VCNT DATA DSP ADDR.#10A FOR FPS							----|
1CE	50	50	50	50	DIS;LIMIT							
1CF	18	18	18	18	DIS; FACTOR OF FREQUENCY							
					CLUSTER 13 (HEADER[3:0] = 4'b1101); DECODER 1							
1D0	00	00	00	00	|----DVAS[7:0]; HORIZENTAL ACTIVE VIDEO START POINT							----|
1D1	00	26	00	00	|----DVAE[7:0]; HORIZENTAL ACTIVE VIDEO END POINT CONTROL							----|
1D2	00	00	00	00	|----VAVS[7:0]; VERTICAL ACTIVE VIDEO START POINT							----|
1D3	00	00	00	00	|----VAVE[7:0]; VERTICAL ACTIVE VIDEO END POINT CONTROL							----|

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
1D4	26	26	15	15	|---- H_SYNC_START_POINT[7:0]; -128~+0127 ----|							
1D5	00	00	00	00	|---- H_SYNC_END_POINT[7:0]; -128~+0127 ----|							
1D6	04	04	04	04	SIM	COMP	COPYEN	LOCKER	MANU	PLAY	FAET	STILL
1D7	00	00	00	00	DLINE	LOCKSPD[2:0]			PD2	PD3	COPYLVL[1:0]	00:LARGE
					no-ad	no-dop	u-sign	copy	c-lock	c-det	h-lock	no-video
1D8	00	00	00	00	|---- HSW-ADJ[7:0];HAED SWITHING POINT ADJUDT VALUE ----|							
1D9	26	26	26	26	|---- Y-OFFSET DATA READ[7:0] ----|							
1DA	0C	0C	0C	0C	|---- VCOPY[3:0]				VCO_RNGL[1:0]		VCO_RNGH[1:0]	
1DB	56	56	56	56	|---- DCSYNC_ADJ[7:0] DCSYNC HORIZONTAL START POINT ----|							
1DC	00	00	00	00	|---- C_PRO_GAIN[7:0] COPY PROTECT LEVEL CONTROL ----|							
1DD	10	0E	FA	FB	|---- PHSYNC_ADJ[7:0] PSEUDO HSYNC POINT ADJUST ----|							
1DE	E0	E0	E1	E1	FILSEL2		FILSEL3		X	SUB	DVC	PAL
1DF	21	21	20	20	DCP[3:0] 0.5H:DCP*0.5H				ANALOG[3:0] 0.5H:ANALOG*0.5H			
					CLUSTER 14 (HEADER[3:0] = 4'b1110) ; DECODER 2							
1E0	80	80	80	80	OLD2	BETA[8]	SEL_CON;U/V	CDLY[1:0]		CORE[2:0] ;CHROMA SIGNAL SLICE		
1E1	00	00	04	04	FASTAPC	CGAINH	C.KILL[1:0]		|---- FIL_SEL[2:0] ----|			X
1E2	C3	C3	C3	C3	PAL_JOG	ACCFR	|----UOFF[5:0]; U(B-Y) SIGNAL OFFSET ----|					
1E3	83	83	83	83	VCLPF	GAINSEL	|----VOFF[5:0]; V(R-Y) SIGNAL OFFSET ----|					
1E4	37	37	37	37	|---- U(B-Y)_GAIN[7:0]; -X2~X2 ----|							
1E5	51	51	51	51	|---- V(R-Y)_GAIN[7:0]; -X2~X2 ----|							
1E6	75	80	80	80	|---- CGAIN-L[7:0]; ACCR='1'UNI-GAIN MODE ----|							
1E7	00	00	00	00	|---- HUE[7:0] ;CHROMA HUE CONTROL VALUE FOR NTSC USED ONLY ----|							
1E8	00	00	00	00	|---- CKILL_REF[7:0]; COLOR KILL REFERENCE VALUE ----|							
1E9	80	80	80	80	|---- DYGAIN[7:0] ; DECODER Y GAIN CONTROL ,0~X2 ----|							
1EA	00	00	00	00	X	DPR_WR	DPR_RD	|----	HLPF[2:0]; Y LPF		HPK[1:0]; PEAKING DEPTH	
1EB	10	10	10	10	X	X	COMBY_DLY	AUTO-OFF	CTRAP	YBWR	HBW	DECIMATION
1EC	00	00	00	00	|---- CORR[7:0] CTRAP CORRELATION ADDRESS ----|							
1ED	53	53	53	53	|---- ATT[7:0] CORRELATED SIGNAL ATTENUATION LEVEL Y COMB(0 ~ X1) ----|							
1EE	04	04	04	04	X	X	X	X	TRAP_LIM[3:0] TRAP LIMITTER Y COMB			
1EF	BD	BD	BD	BD	|---- BURSTG[7:0] BURST GAIN 0 ~ X2 ----|							
					CLUSTER 15 (HEADER[3:0] = 4'b1111) , DECODER 3							
1F0	00	00	00	00	|---- YOFF[7:0] -128~+127 AUTO ----|							
1F1	60	60	60	60	DCDLY	MULTI	VAV_ADJ[1:0]		V-MOSAIC	H-MOSAIC	F-MIRROR	H-MIRROR
1F2	04	04	04	04	|---- VMSIZE[7:0] VERTICAL MOSAIC SIZE ----|							
1F3	04	04	04	04	|---- HMSIZE[7:0] HORIZONTAL MOSAIC SIZE ----|							
1F4	BD	BD	BA	BA	|---- HM_REF[7:0] HORIZONTAL MOSAIC REFERENCE ----|							
1F5	08	08	08	08	|---- DNR_LIM[7:0] DNR LIMITATION VALUE ----|							
1F6	71	71	71	71	|---- DNR_GAIN[3:0] ----|				|---- DNR_LIM[3:0] ----|			
1F7	00	00	00	00	|---- VS_DET[7:0] VERTICAL SYNC DETECTION DEFAULT ADD OR SUB FROM 244 ----|							
1F8	00	00	00	00	|---- STILL_OFF[7:0] STILL MODE AD DATA, ADD OR SUB ----|							
1F9	40	43	40	43	|---- ALPHA[7:0] VERTICAL LOW PASS FILTER, DEEP at '00' ----|							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	OPTION	D6	D5	D4	D3	D2	D1	D0
1FA	80	70	80	70	|---- BETA[7:0] VERTICAL LOW PASS FILTER BETA=256-2*ALPHA							----|
1FB	05	05	16	16	|---- STP_TH[7:0] STEEP THRESHOLD:0~255 VERTICAL LPF, AD ACTIVE OPERATION THRESHOLD							----|
1FC	07	0B	07	0B	|---- COFFSET[7:0] Y,C DELAY							----|
IFD	00	FC	FC	FC	|---- DOP_DLY[7:0] DOP DELAY							----|
1FE	00	00	00	00	X	X	MEM_TH [5:0] MEMORY THRESHOLD CONTROL					----|
1FF	xx				CAMERA MICOM VERSION DISPLAY XX XX (Month-date)							
"CAMERA ADJUST MODE, EEPROM ADDRESS SEQUENCE & DATA OF PAGE 2"												
	NOR	HI8	NOR	HI8	D7	D6	D5	D4	D3	D2	D1	D0
200	40	40	40	40	DIS_ON	ZOOM_ON	LSSC_ON	MIRR_ON	PIP_ON	POWER	PIP_MIRR	BYPASS
201	8C	8C	8C	8C	FRAME	STILL1	STILL2	CEDGE_ON	APT_ON	OSD_ON	TRA_ON	GAMA_ON
202	00	20	40	60	DVC	PAL	HIGH	FLD_SEL	BIST	PN_SEL	CUR_HOLD	CLEAR
203	F0	F0	F0	F0	|---- KX (7:0) HORIZONTAL ZOOM COEFFICENT VALUE							----|
204	F0	F0	F0	F0	|---- KY (7:0) VERTICAL ZOOM COEFFICENT VALUE							----|
205	64	8E	5D	98	|---- SP_H (7:0) HORIZONTAL START POINT FOR ZOOM							----|
206	14	13	19	19	|---- SP_V (7:0) VERTICAL START POINT FOR ZOOM							----|
207	00	00	00	00	|---- WIDTH (7:0) HORIZONTAL WIDTH LSB							----|
208	02	03	02	03	X	X	X	X	X	X	WIDTH (9:8) WIDTH MSB	
209	F5	F5	22	22	|---- HEIGHT [7:0] VERTICAL HEIGHT LSB							----|
20A	00	00	01	01	X	X	X	X	X	X	X	HEIGHT(8)
20B	98	8D	98	8E	|---- PIP_HSP (7:0) PIP IMAGE HORIZONTAL START POINT LSB							----|
20C	01	02	01	02	X	X	X	X	X	X	PIP_HSP(9:8)	
20D	88	87	AD	AD	|---- PIP_VSP (7:0) PIP IMAGE VERTICAL START POINT LSB							----|
20E	00	00	00	00	X	X	X	X	X	X	X	PIP_VSP(8)
20F	A4	A4	A3	A3	|---- PBOX_HSP (7:0) PIP BOX HORIZONTAL START POINT LSB							----|
210	01	01	02	02	X	X	X	X	X	X	PBOX_HSP(9:8)	
211	B8	B8	B9	B8	|---- PBOX_VSP (7:0) PIP BOX VERTICAL START POINT LSB							----|
212	00	00	00	00	X	X	X	X	X	X	X	PBOX_VSP(8)
213	07	07	07	07	|---- PIP_DSP_HADJ (7:0) PIP IMAGE WIDTH ADJUST							----|
214	03	03	03	03	|---- PIP_DSP_VADJ (7:0) PIP IMAGE HEIGHT ADJUST							----|
215	00	03	00	00	|---- PBOX_DSP_HADJ (7:0) PIP BOX WIDTH ADJUST							----|
216	00	00	00	00	|---- PBOX_DSP_VADJ (7:0) PIP BOX HEIGHT ADJUST							----|
217	45	6E	3C	78	|---- OUT_OFF (7:0) FIELD MEMORY1 HORIZONTAL OUTPUT S/P							----|
218	44	6E	3C	78	|---- OUT_OFF1 (7:0) FIELD MEMORY1 HORIZONTAL OUTPUT S/P							----|
219	08	08	08	08	GR_MODE (7:4) INTERNAL IMAGE SELECT MODE				|---- OSD_VAL (3:0)			----|
21A	99	8E	99	8E	CLK2_SEL	|----CLK2_SEL (6:0) CLK DELAY ADJUST						----|
21B	80	80	1F	8C	S1S2_SEL0	CRCB_SEL0	S1S2_SEL1	CRCB_SEL1	LINE_SEL0	LINE_SEL1	LINE_SEL2	LINE_SEL3
21C	12	0C	12	0B	OSD_SEL (7:5)			|---- HVD_ADJ				----|
21D	04	84	04	04	PIP_S1S2_SEL	|----LS_CNT(6:0) LOW SHUTTER SPEED CONTROL REGISTER						----|
21E	4C	76	52	84	|---- DCLP_R (7:0) RISING EDGE TIME CONTROL FOR ODM							----|
21F	54	7E	5A	8C	|---- DCLP_F (7:0) FALLING EDGE TIME CONTROL FOR ODM							----|
220	04	04	08	04	YHAFS		YLPFS		HAPG (3:0) HORIZONTAL APERTURE GAIN CONTROL			
221	2A	2A	2A	2A	|---- APCLP (7:0) HORIZONTAL APERTURE CLIP LEVEL							----|

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	D7	D6	D5	D4	D3	D2	D1	D0
222	02	02	02	02	|---- APSC (7:0) HORIZONTAL APERTURE SLICE LEVEL ----|							
223	00	00	00	00	|---- ECST (7:0) COLOR EDGE SUPRESSION CLIP LEVEL ----|							
224	44	44	44	44	ECSG (7:4) HORIZONTAL COLOR EDGE SUPRESSION				ECSGV (3:0) VERTICAL COLOR EDGE SUPRESSION			
225	83	83	83	83	G1 (7:4) COLOR HORIZONTAL SPLINE GAIN CONTROL				|---- G2 (3:0) ----|			
226	0D	0D	0D	0D	EDGE_SEL	X	X	|---- G0 (4:0) ----|				
227	00	00	00	00	|---- HUE1_OFF (7:4) ----|				|---- HUE2_OFF (3:0) ----|			
228	12	02	1F	1F	|---- ECHUE1 (7:0) GAIN OF CR FOR BLACK BALANCE ----|							
229	04	14	00	02	|---- ECHUE2 (7:0) GAIN OF CB FOR BLACK BALANCE ----|							
22A	02	02	02	02	|---- APSCV (7:0) VERTICAL APERTURE SLICE LEVEL ----|							
22B	F0	F0	F0	F0	WV1 (7:4) VERTICAL SPLINE GAIN CONTROL1				WV2 (3:0) VERTICAL SPLINE GAIN CONTROL2			
22C	70	70	70	70	WH1 (7:4) HORIZONTAL SPLINE GAIN CONTROL				KT_DIV (3:0) SUB PIXEL COEFFICENT GAIN			
22D	04	04	04	04	|---- OVERLAY (7:0) FEED BACK IMAGE BOUNDARY ADJUST ----|							
22E	40	40	40	40	|---- TO (7:0) TIIR COEFFICENT VALUE ----|							
22F	10	10	10	10	|---- MAN_TO (7:0) TIIR FILTER CLIP GAIN ----|							
230	04	04	04	04	|---- TIIR_TH (7:0) TIIR FILTER SLICE LEVEL ----|							
231	40	40	40	40	LINEAR	FM2_FLD	TIIR_INT	DIR_CURX	DIR_CURY	X	X	X
232	04	04	08	08	|---- GA0 (7:0) IMAGE1 GAMMA GAIN ----|							
233	07	07	0D	0D	|---- GA1 (7:0) IMAGE1 GAMMA GAIN ----|							
234	15	15	1B	1B	|---- GA2 (7:0) IMAGE1 GAMMA GAIN ----|							
235	2C	2C	32	32	|---- GA3 (7:0) IMAGE1 GAMMA GAIN ----|							
236	4D	4D	57	57	|---- GA4 (7:0) IMAGE1 GAMMA GAIN ----|							
237	70	70	82	82	|---- GA5 (7:0) IMAGE1 GAMMA GAIN ----|							
238	B4	B4	C0	C0	|---- GA6 (7:0) IMAGE1 GAMMA GAIN ----|							
239	F8	F8	F0	F0	|---- GA7 (7:0) IMAGE1 GAMMA GAIN ----|							
23A	F8	F8	F0	F0	|---- GA8 (7:0) IMAGE1 GAMMA GAIN ----|							
23B	04	04	08	08	|---- GB0 (7:0) IMAGE1 GAMMA GAIN ----|							
23C	07	07	0D	0D	|---- GB1 (7:0) IMAGE1 GAMMA GAIN ----|							
23D	15	15	1B	1B	|---- GB2 (7:0) IMAGE1 GAMMA GAIN ----|							
23E	2C	2C	32	32	|---- GB3 (7:0) IMAGE1 GAMMA GAIN ----|							
23F	4D	4D	57	57	|---- GB4 (7:0) IMAGE1 GAMMA GAIN ----|							
240	70	70	82	82	|---- GB5 (7:0) IMAGE1 GAMMA GAIN ----|							
241	B4	B4	C0	C0	|---- GB6 (7:0) IMAGE1 GAMMA GAIN ----|							
242	F8	F8	F0	F0	|---- GB7 (7:0) IMAGE1 GAMMA GAIN ----|							
243	F8	F8	F0	F0	|---- GB8 (7:0) IMAGE1 GAMMA GAIN ----|							
244	60	A5	60	C4	|---- SP_HM (7:0) HORIZONTAL START POINT FOR MOTION ----|							
245	15	15	1E	1E	|---- SP_VM (7:0) VERTICAL START POINT FOR MOTION ----|							
246	F2	F2	16	16	|---- HEIGHTM (7:0) IMAGE HEIGHT FOR MOTION ----|							
247	00	00	01	01	X	X	X	X	X	X	X	HEIGHTM(8)
248	FE	E0	D0	94	|---- WIDTHM (7:0) IMAGE WIDTH FOR MOTION ----|							
249	01	02	01	02	X	X	X	X	X	X	WIDTH(9:8)	
24A	DE	DE	DE	DE	|---- KX_MD (7:0) MOTION DETECTION ZOOM COEFFICIENT FOR HORIZONTAL ----|							

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	D7	D6	D5	D4	D3	D2	D1	D0
24B	DE	DE	DE	DE	|---- KY_MD (7:0) MOTION DETECTION ZOOM COEFFICIENT FOR VERTICAL ----							|
24C	00	00	00	00	|---- OSD_MODE (7:0) ----							|
24D	C1	C1	C1	C1	DIS_ENX	DIS_DNY	DIR_VX	DIR_VY	DXYSET	F_PROJ	HLF_SFT	FRM_VY
24E	00	00	00	00	|---- OX (7:0) AREA OFFSET OF MOTION DETECTION AREA IN X DIRECTION ----							|
24F	00	00	00	00	X	X	X	X	X	X	OX (9:8)	
250	00	00	00	00	|---- OY (7:0) AREA OFFSET OF MOTION DETECTION AREA IN Y DIRECTION ----							|
251	00	00	00	00	|---- CX (7:0) ASSIGNED MOTION VECTOR FOR X ---> MOTION CENTERING ----							|
252	06	06	06	06	|---- CY (7:0) ASSIGNED MOTION VECTOR FOR Y ---> MOTION CENTERING ----							|
253	00	00	00	00	AX (7:4) COMPENSATION MARGIN X				AY (3:0) COMPENSATION MARGIN Y			
254	33	33	33	33	|---- AUTO_CENT (7:0) AUTO CENTERING ----							|
255	88	88	88	88	VGGAINX (7:4) MOTION GAIN X				VGGAINY (3:0) MOTION GAIN Y			
256	21	21	21	21	VGSTEP (7:4) MOTION GAIN RECOVERY STEP				GSPEED (3:0) DISPLAY BAR GRAPH SPEED			
257	48	48	48	48	|---- THR_SEL (7:0) THRESHOLD CONTROL ----							|
258	11	11	11	11	|---- CXY_BIAS (7:0) SCENE CHANGE FILTER OFFSET FOR THRESHOLD ----							|
259	A5	A5	A5	A5	MATCHX_EN	MVX_FMIN	QUART_X		MVX_GAP (3:0) MISMATCH THRESHOLD			
25A	A5	A5	A5	A5	MATCHY_EN	MVY_FMIN	QUART_X		MVX_GAP (3:0) MISMATCH THRESHOLD			
25B	68	68	68	68	SHMFBC (7:4) SUM FILTER FEED BACK COEFFICIENT				SHMITT (3:0) SUM FILTER THRESHOLD			
25C	E0	E0	E0	E0	MVIIR_EN	SCENE_X	SCENE_Y	FRM_DIS	F_SELECT	HLD_HIST	HIST_SFT	
25D	00	00	00	00	OZNSEL (7:5) AF/AE DISPLAY WINDOW			OYISEL	OFILPASS	OLPFSEL	X	X
25E	73	70	8B	8B	|---- OAEVE_WB (7:0) AE WINDOW B, VERTICAL END POINT ----							|
25F	1E	1B	24	24	|---- OAEVS_WB (7:0) AE WINDOW B, VERTICAL START POINT ----							|
260	EA	E2	E7	E8	|---- OAEHE_WB (7:0) AE WINDOW B, HORIZONTAL END POINT ----							|
261	06	02	01	02	|---- OAEHE_WB (7:0) AE WINDOW B, HORIZONTAL START POINT ----							|
262	6A	6B	81	81	|---- OAEVE_WA (7:0) AE WINDOW A, VERTICAL END POINT ----							|
263	20	1D	26	26	|---- OAEVS_WA (7:0) AE WINDOW A, VERTICAL START POINT ----							|
264	BD	B9	B2	B3	|---- OAEHE_WA (7:0) AE WINDOW A, HORIZONTAL END POINT ----							|
265	3F	3B	31	32	|---- OAEHE_WA (7:0) AE WINDOW A, HORIZONTAL START POINT ----							|
266	5F	5C	71	71	|---- OAFVE_W2 (7:0) AF WINDOW 2, VERTICAL END POINT ----							|
267	25	22	29	29	|---- OAFVS_W2 (7:0) AF WINDOW 2, VERTICAL START POINT ----							|
268	A8	A4	A2	A3	|---- OAFHE_W2 (7:0) AF WINDOW 2, HORIZONTAL END POINT ----							|
269	4E	4A	47	48	|---- OAFHS_W2 (7:0) AF WINDOW 2, HORIZONTAL START POINT ----							|
26A	76	76	8D	8D	|---- OAFVE_W1 (7:0) AF WINDOW 1, VERTICAL END POINT ----							|
26B	03	03	04	04	|---- OAFVS_W1 (7:0) AF WINDOW 1, VERTICAL START POINT ----							|
26C	E5	E5	DC	DC	|---- OAFHE_W1 (7:0) AF WINDOW 1, HORIZONTAL END POINT ----							|
26D	03	03	06	06	|---- OAFHS_W1 (7:0) AF WINDOW 1, HORIZONTAL START POINT ----							|
26E	00	00	00	00	|---- OYL_TH (7:0) AE Y SINGLE LOW THRESHOLD ----							|
26F	FF	FF	FF	FF	|---- OYH_TH (7:0) AE Y SINGLE HIGH THRESHOLD ----							|
270	C0	C0	C0	C0	|---- OAECLIP_TH (7:0) AE CLIP COUNT THRESHOLD ----							|
271	C0	C0	C0	C0	|---- OAFCLIP_TH (7:0) AF CLIP COUNT THRESHOLD ----							|
272	00	00	00	00	|---- PFCNT_MI (7:0) DEFECT COUNT VALUE FROM MICOM ----							|
273	28	28	28	28	|---- PTHRESH (7:0) DIGITAL CLAMP THRESHOLD VALUE FROM MICOM ----							|

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	D7	D6	D5	D4	D3	D2	D1	D0
274	0C	0D	0D	0D	|---- POFFSET (7:0) DIGITAL CLAMP OFFSET VALUE FROM MICOM ----|							
275	03	03	03	03	|---- PCMD (7:0) PREPROCESS COMMAND FROM MICOM ----|							
276	00	00	00	00	|---- PRAMIL (7:0) DEFECT POSITION VALUE(7:0) FROM MICOM ----|							
277	00	00	00	00	|---- PRAMIM (16:8) DEFECT POSITION VALUE(15:8) FROM MICOM ----|							
278	00	00	00	00	X	X	X	X	PRAMIM (19:16) DEFECT POSITION FROM MICOM			
279	00	00	00	00	X	X	|----PRAMA_MI (5:0) LINE MEMORY ADDRESS FROM MICOM ----|					
27A	00	00	00	00	DIS;FACTOR AT BLC ON CONDTION							
27B	00	00	00	00	DIS;FACTOR AT BLC ON CONDTION							
27C	00	00	00	00	DIS;FACTOR AT WDR ON CONDTION							
27D	00	00	00	00	DIS;FACTOR AT WDR ON CONDTION							
27E	F4	F4	F4	F4	DIS;WIGHT WHEN DECREASE							
27F	00	00	00	00	DIS; STEP CONTROL '00~88'							

"CHANGED BY MODEL"

	NO-OSD-DISPLAY				DISTANCE							
ADDR	MODEL/DATA				CONTENT							
	NTSC		PAL									
	NOR	HI8	NOR	HI8	D7	D6	D5	D4	D3	D2	D1	D0
									PAL		NTSC	
001	40	-	40	-	CAMERA OPTION ; NON I-BLC				VP-L500,L520,L530		SCL500,L520	
	50	50	50	50	CAMERA OPTION ; I-BLC				VP-M550(HI-8)		SCL530,L550(HI8)	
05A	08	-	0C	-	DIGITAL CLAMP AT AGC ON(#118-#05A); NON-DIS				VP-L500,L520		SCL500,L520	
	00	00	00	00	DIGITAL CLAMP AT AGC ON(#118-#05A); DIS MODE				VP-L530,L550(HI-8)		SCL530,L550(HI8)	
07E	E7	-	-	-	D.ZOOM RATIO MAX ; X220				-		SCL500	
	F4	F4	F4	F4	D.ZOOM RATIO MAX ; X440				VP-L500,L520,L530,L550(HI8)		SCL520,L530,L550(HI8)	
104	07	-	08	-	GLOVAL DELAY : NON I-BLC, NON-DIS				VP-L500,L520		SCL500,L520	
	-	-	08	-	GLOVAL DELAY ; NON I-BLC DIS				VP-L530		-	
	18	0C	-	0C	GLOVAL DELAY ; I-BLC,DIS				VP-L550(HI8)		SCL530,L550(HI8)	
118	08	-	0D	-	DIGITAL CLAMP ; NON-DIS				VP-L500,L520		SCL500,L520	
	00	00	00	00	DIGITAL CLAMP ; DIS				VP-L530,L550(HI8)		SCL530,L550(HI8)	
134	0A	-	04	-	R-DARK-SLICE ; NON-DIS				VP-L500,L520		SCL500,L520	
	0A	05	09	09	R-DARK-SLICE ; DIS				VP-L530,L550(HI8)		SCL530,L550(HI8)	
135	FA	-	07	-	B-DARK-SLICE ; NON-DIS				VP-L500,L520		SCL500,L520	
	00	FE	FD	00	B-DARK-SLICE ; DIS				VP-L530,L550(HI8)		SCL530,L550(HI8)	

4-2-2 Camera System Adjustment

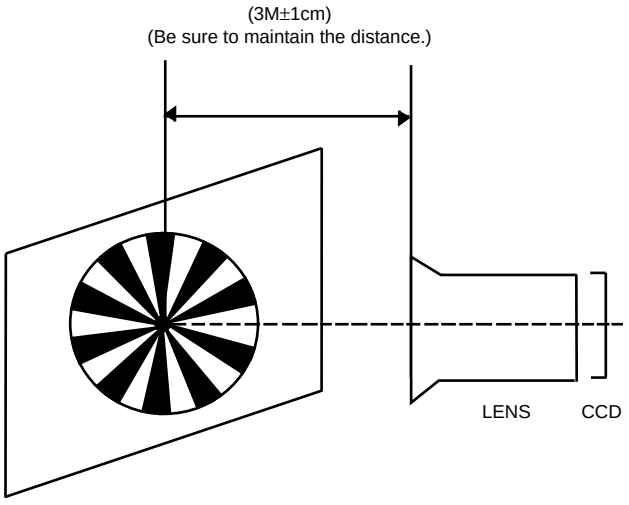
Note : The on-screen display information.
"XX XX" means arbitrary value.
It can be different number depend on the conditions.

0DF	T.INI	XX	XX

1. Focus to zoom tracking

Notes : To maintain proper focus throughout the zoom range, the focus lens position must be changed as the zoom lens is moved.
During this adjustment the microprocessor will measure the focus positioning requirements at the wide and telephoto position of the zoom lens.

1) Camera "E-E".
2) Focus chart (Attached on the last page of this manual).
3) Aim the camera at the focus chart placed 3 meters away and perpendicular to the center of the lens.
The chart should be placed on the flat, gray or white wall.
4) Connect monitor TV jack to video output jack.
5) Press the "FADE(MODE UP)" and "BLC(MODE DOWN)" button, so that the OSD start is "0DE. 3M LENS XX XX".
6) Press "PROGRAM AE(CONFIRM)" button.
The camera will move both zoom and focus lens.
The adjustment is finished when the O.K! message appears on the TV screen.
Store the data to mode 0A6, 0A7, 0A8, 0A9, 0AA, 0AB, 0AC or 0AD.



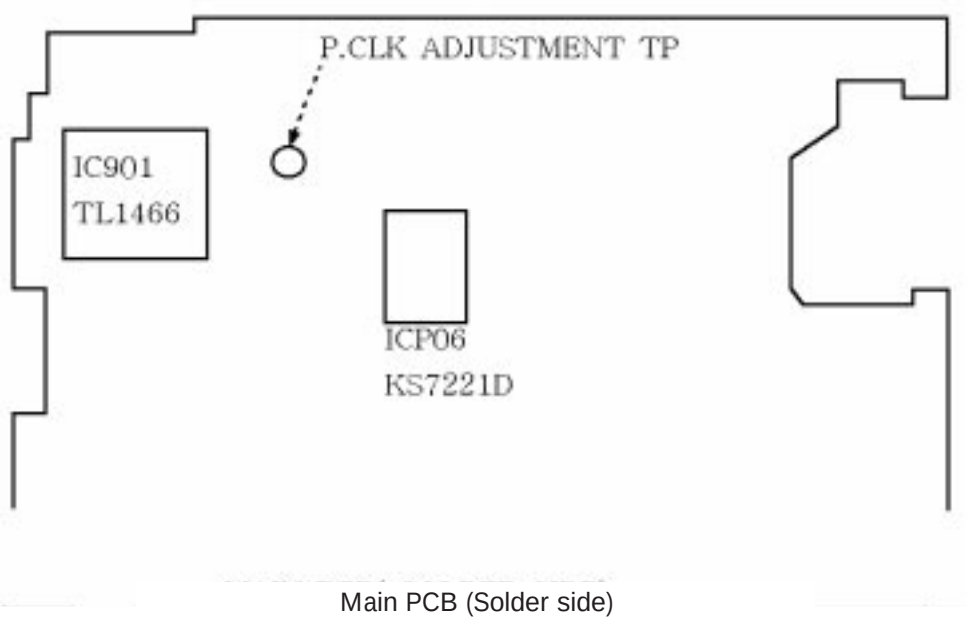
2. P. CLK Adjustment

1) “Camera”, no signal input.
2) P.CLK and AF MICOM.
3) Connect a frequency counter to P.CLK.
4) Press the “FADE(MODE UP)/BLC(MODE DOWN)” button so that the OSD state is “004 XX XX”.
5) Adjust the “DSE(DATA UP)/TITLE(DATA DOWN)” button so that frequency is

· PAL: NORMAL --> 9.453125MHz ± 50Hz. Hi8 --> 14.18750MHz ± 50Hz.

· NTSC: NORMAL --> 9.534964MHz ± 50Hz. Hi8 --> 14.318182MHz ± 50Hz.

NOTE : Frequency changes after the confirm button is pressed.



Main PCB (Solder side)

3. Zoom VR Center

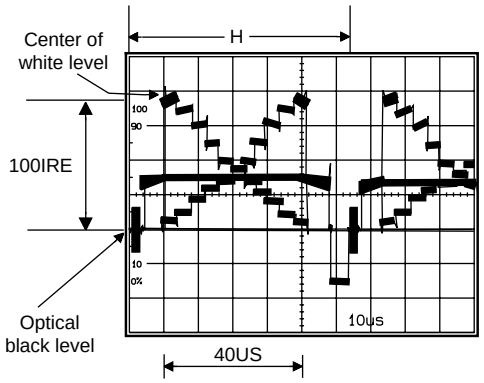
1) Camera “E-E”, 3100°K gray-scale chart.
2) Video(output) jack and EVR.
3) Connect monitor TV to video(output) jack.
4) Press the “FADE (MODE UP)/BLC (MODE DOWN)” button so that the OSD state is “OD6. ZVR.C XX XX”.
5) Press “PROGRAM AE(CONFIRM)” button.
6) Then, the microprocessor will work ;
   - Find the Zoom VR Center position
   - Store the data to mode 0B7.

4. Auto hall

1) Camera “E-E”, 3100°K gray-scale chart.
2) Video(output) jack and EVR.
3) Connect monitor TV to video(output) jack.
4) Press the “FADE(MODE UP)/BLC(MODE DOWN)” button so that the OSD state is “OCD. HALL XX XX”.
5) Press “PROGRAM AE(CONFIRM)” button.
6) Then, the microprocessor will work ;
   - IRIS open, HALL maximum value found,
   - IRIS closed, HALL minimum value found,
   - IRIS open, HALL maximum value found,
   - Store the data to mode 00A and mode 00B.
   - Store the HALL min./max. data to mode 0C1 and mode 0C2.

5. AUTO IRIS

1) Camera “E-E”, 3100°K gray-scale chart.
2) Video(output) jack and AF MICOM.
3) Connect video(output) jack to waveform monitor input jack and monitor TV jack respectively.
4) Press the “FADE(MODE UP)/BLC(MODE DOWN)” button so that the OSD state is “OCE. IRIS XX XX”.
5) Press “PROGRAM AE(CONFIRM)” Button.
6) Then, the micro process will work;
   - IRIS open, IRIS control minimum Value found.
   - IRIS close, IRIS control minimum Value found.
   - Store the data to mode 0B5, 0B6, 0C7 and 0C8.
7) The OSD shows “O.K”.

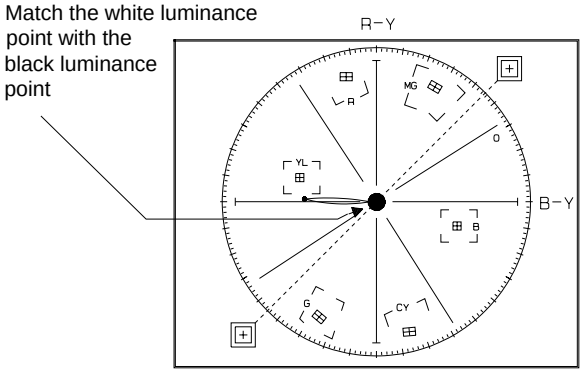


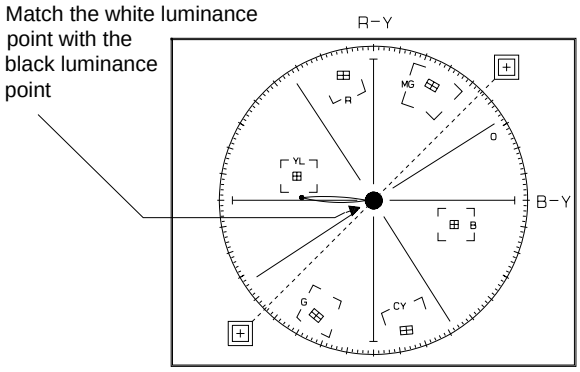
6. Auto white balance

1) Camera “E-E”, 3100°K/5100°K gray-scale chart.
2) Video(output) jack and AF MICOM.
4) Connect vectorscope input jack to video(output) jack.
3) Press the “FADE(MODE UP)/BLC(MODE DOWN)” button so that the OSD state is “0CF. AWB XX XX”.

a. W/B Indoor
a-1. Aim the camera at a 3100°K gray-scale chart illuminated at 1500 to 2000 lx. (40us)
a-2. Press “PROGRAM AE(CONFIRM)” button so that the white vector moves to the center on screen of the vectorscope.
a-3. The OSD shows “OK!”.

b. W/B Outdoor
b-1. Aim the camera at a 5100°K gray-scale (3100°K+CCB16) chart illuminated at 1500 to 2000 lx. (40us)
b-2. Press “PROGRAM AE(CONFIRM)” button so that the white vector moves to the center on screen of the vectorscope.
b-3. Store the data to mode 0C9, 0CA, 0CB and 0CC.
b-4. The OSD shows “OK!”.





7. Pre white balance (I)

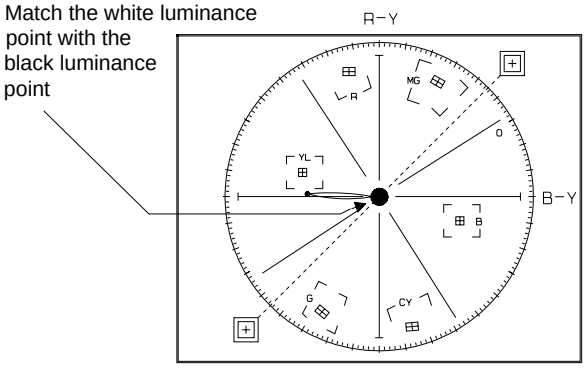
1) Camera “E-E”, 3100°K gray-scale chart.
2) Video(output) jack and AF MICOM.
3) Connect vectorscope input jack to video(output) jack.
4) Press the “FADE(MODE UP)/BLC(MODE DOWN)” button so that the OSD state is “137. XX XX”.
5) Aim the camera at a 3100°K gray-scale chart illuminated at 1500 to 2000 lx.
6) Adjust the “ DSE(DATA UP)/TITLE (DATA DOWN)” button so that the white vector moves to the B-Y axial on screen of the vectorscope.

Note : Bright dot shifts after the confirm button is pressed.

8. Pre white balance (II)

1) Camera “E-E”, 3100°K gray-scale chart.
2) Video(output) jack and AF MICOM.
4) Connect vectorscope input jack to video(output) jack.
3) Press the “FADE (MODE UP) / BLC(MODE DOWN)” button so that the OSD state is “138. XX XX”.
5) Aim the camera at a 3100°K gray-scale chart illuminated at 1500 to 2000 lx.
6) Adjust the “DSE(DATA UP) / TITLE (DATA DOWN)” button so that the white vector moves to the R-Y axial on screen of the vectorscope.

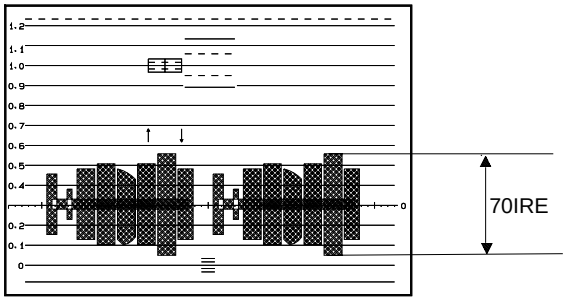
Note : Bright dot shifts after the confirm button is pressed.



9 R-Y Positive Gain

1) Camera “E-E”, 3100°K color bar chart.
2) Video(output) jack and register of EEPROM.
3) Connect video(output) jack to waveform monitor input jack and monitor TV jack respectively.
4) Press the “FADE(MODE UP) / BLC(MODE DOWN)” button so that the OSD state is “147. XX XX”.
5) Aim the camera at a color bar chart illuminated at 1500 to 2000 lx.
6) Adjust the “ DSE(DATA UP) / TITLE(DATA DOWN)” button so that the red level is 70IRE(NTSC) / 500mV(PAL) .
7) Be sure to press the “PROGRAM AE(CONFIRM)” button to memorize setting.

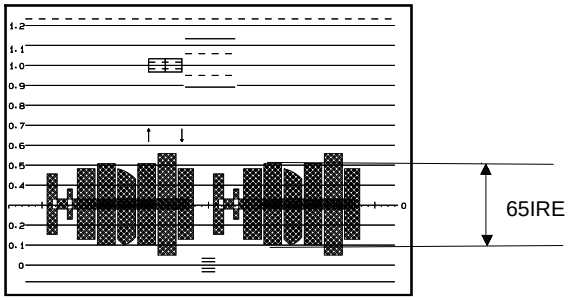
Note : Bright dot shifts after the confirm button is pressed.



10. R-Y Negative Gain

1) Camera “E-E”, 3100°K color bar chart.
2) Video(output) jack and register of EEPROM.
3) Connect video(output) jack to waveform monitor input jack and monitor TV jack respectively.
4) Press the “FADE(MODE UP) / BLC(MODE DOWN)” button so that the OSD state is “148. XX XX”.
5) Aim the camera at a color bar chart illuminated at 1500 to 2000 lx.
6) Adjust the “ DSE(DATA UP) / TITLE(DATA DOWN)” button so that the cyan level is 65IRE(NTSC) / 350mV(PAL).
7) Be sure to press the “PROGRAM AE(CONFIRM)” button to memorize setting.

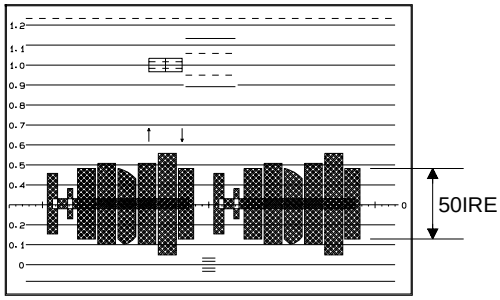
Note : Bright dot shifts after the confirm button is pressed.



11. B-Y Positive Gain

1) Camera “E-E”, 3100°K color bar chart.
2) Video(output) jack and register of EEPROM.
3) Connect video(output) jack to waveform monitor input jack and monitor TV jack respectively.
4) Press the “FADE(MODE UP) / BLC(MODE DOWN)” button so that the OSD state is “14B XX XX”.
5) Aim the camera at a color bar chart illuminated at 1500 to 2000 lx.
6) Adjust the “DSE(DATA UP) / TITLE (DATA DOWN)” button so that the blue level is 50IRE(NTSC) / 350mV(PAL).
7) Be sure to press the “PROGRAM AE(CONFIRM)” button to memorize setting.

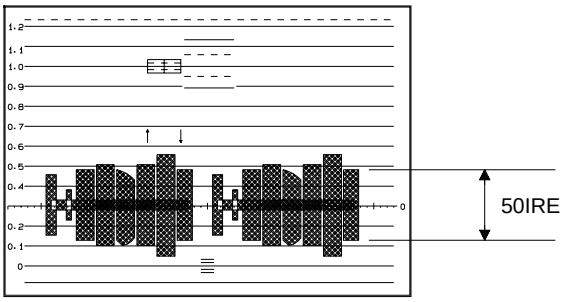
Note : Bright dot shifts after the confirm button is pressed.



12. B-Y Negative Gain

1) Camera “E-E”, 3100°K color bar chart.
2) Video(output) jack and register of EEPROM.
3) Connect video(output) jack to waveform monitor input jack and monitor TV jack respectively.
4) Press the “FADE(MODE UP)/BLC (MODE DOWN)” button so that the OSD state is “14C XX XX”.
5) Aim the camera at a color bar chart illuminated at 1500 to 2000 lx.
6) Adjust the “DSE(DATA UP)/TITLE (DATA DOWN)” button so that the yellow level is 50IRE(NTSC)/350mV(PAL).
7) Be sure to press the “PROGRAM AE(CONFIRM)” button to memorize setting.

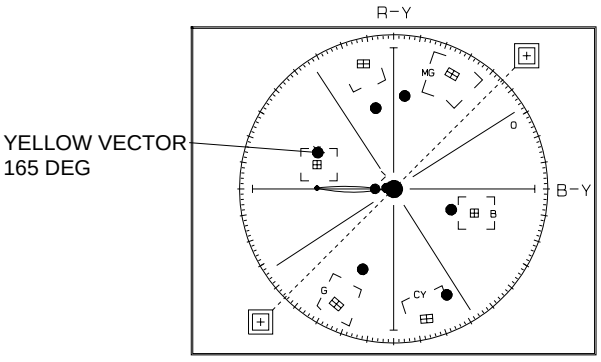
Note : Bright dot shifts after the confirm button is pressed.



13. R-Y Positive Hue

1) Camera “E-E”, 3100°K color bar chart.
2) Video(output) jack and register of EEPROM.
3) Connect video(output) jack to vectorscope input jack and monitor TV jack respectively.
4) Press the “FADE(MODE UP)/BLC(MODE DOWN)” button so that the OSD state is “149 XX XX”.
5) Aim the camera at a color bar chart illuminated at 1500 to 2000 lx.
6) Adjust the “DSE(DATA UP)/TITLE (DATA DOWN)” button so that the yellow vector is 165.
7) Be sure to press the “PROGRAM AE(CONFIRM)” button to memorize setting.

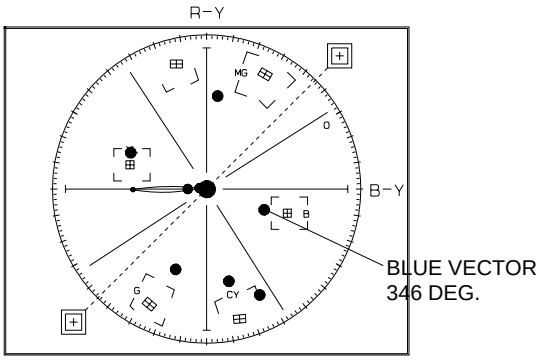
Note : Bright dot shifts after the confirm button is pressed.



14. R-Y Negative Hue

1) Camera “E-E”, 3100°K color bar chart.
2) Video(output) jack and register of EEPROM.
3) Connect video(output) jack to vectorscope input jack and monitor TV jack respectively.
4) Press the “FADE(MODE UP)/BLC(MODE DOWN)” button so that the OSD state is “14A XX XX”.
5) Aim the camera at a color bar chart illuminated at 1500 to 2000 lx.
6) Adjust the “DSE(DATA UP)/TITLE (DATA DOWN)” button so that the blue vector is 346.
7) Be sure to press the “PROGRAM AE (CONFIRM)” button to memorize setting.

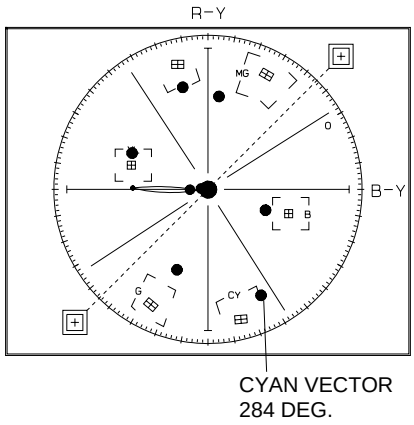
Note : Bright dot shifts after the confirm button is pressed.



15. B-Y Positive Hue

1) Camera “E-E”, 3100°K color bar chart.
2) Video(output) jack and register of EEPROM.
3) Connect video(output) jack to vectorscope input jack and monitor TV jack respectively.
4) Press the “FADE(MODE UP)/BLC(MODE DOWN)” button so that the OSD state is “14D XX XX”.
5) Aim the camera at a color bar chart illuminated at 1500 to 2000 lx.
6) Adjust the “DSE(DATA UP)/TITLE (DATA DOWN)” button so that the cyan vector is 284.
7) Be sure to press the “PROGRAM AE (CONFIRM)” button to memorize setting.

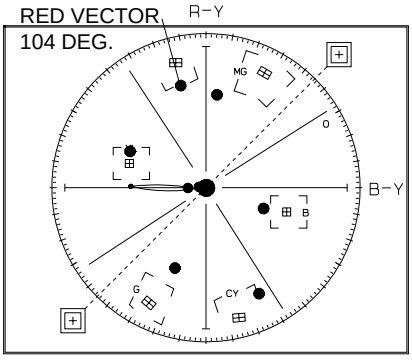
Note : Bright dot shifts after the confirm button is pressed.



16. B-Y Negative Hue

1) Camera “E-E”, 3100°K color bar chart.
2) Video(output) jack and register of EEPROM.
3) Connect video(output) jack to vectorscope input jack and monitor TV jack respectively.
4) Press the “FADE(MODE UP)/BLC(MODE DOWN)” button so that the OSD state is “14E XX XX”.
5) Aim the camera at a color bar chart illuminated at 1500 to 2000 lx.
6) Adjust the “DSE(DATA UP)/TITLE (DATA DOWN)” button so that the red vector is 104.
7) Be sure to press the “PROGRAM AE(CONFIRM)” button to memorize setting.

Note : Bright dot shifts after the confirm button is pressed.



4-2-3 CVF Adjustment

Notes :

1. After each adjustment step is completed, OSD shows “OK”.
2. EEPROM(ICV02) stores confirmed adjustment value of each adjustment step.
3. After finishing the adjustment, reset the main power source (OFF-ON) to memorize the adjustment data in EEPROM.
4. Remote controller is used as a CVF adjust tool.

4-2-3 (a) PREPARATION

1. How to get into the CVF adjust mode.

STEP1

Short the two lands on the CVF PCB by solder to Ground. (They are displayed on page 4-31)

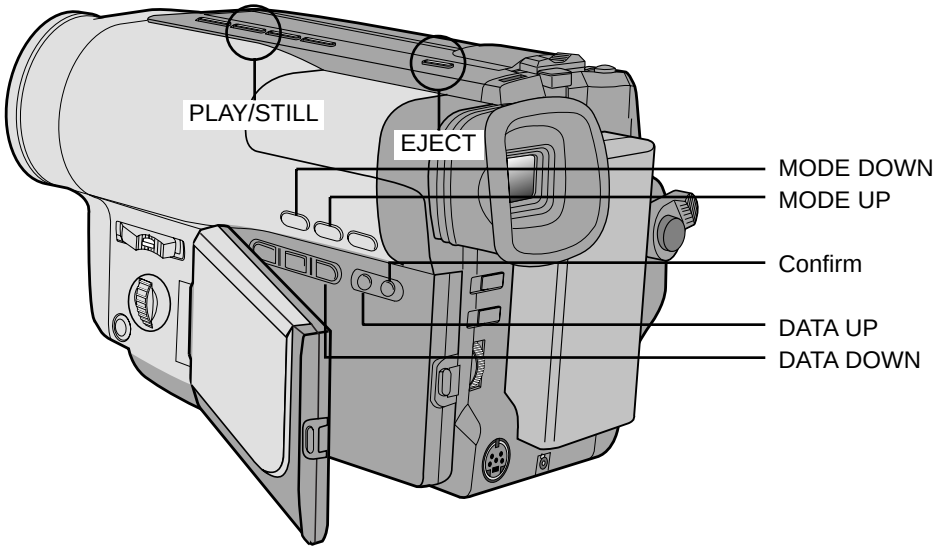
STEP2

1. Connect the power source (battery / DC cable).
2. Set the mode switch of the camcorder to “PLAYER” position.
3. Set OSD on state.
4. Press and hold the “EJECT” button and “PLAY / STILL” button on the camcorder at the same time for more than 5 seconds. Then unit goes into service mode.

STEP3

MONITOR OSD shows “8. PLL EPR XX. EVR XX”. Then CVF adjustment mode has been activated successfully.

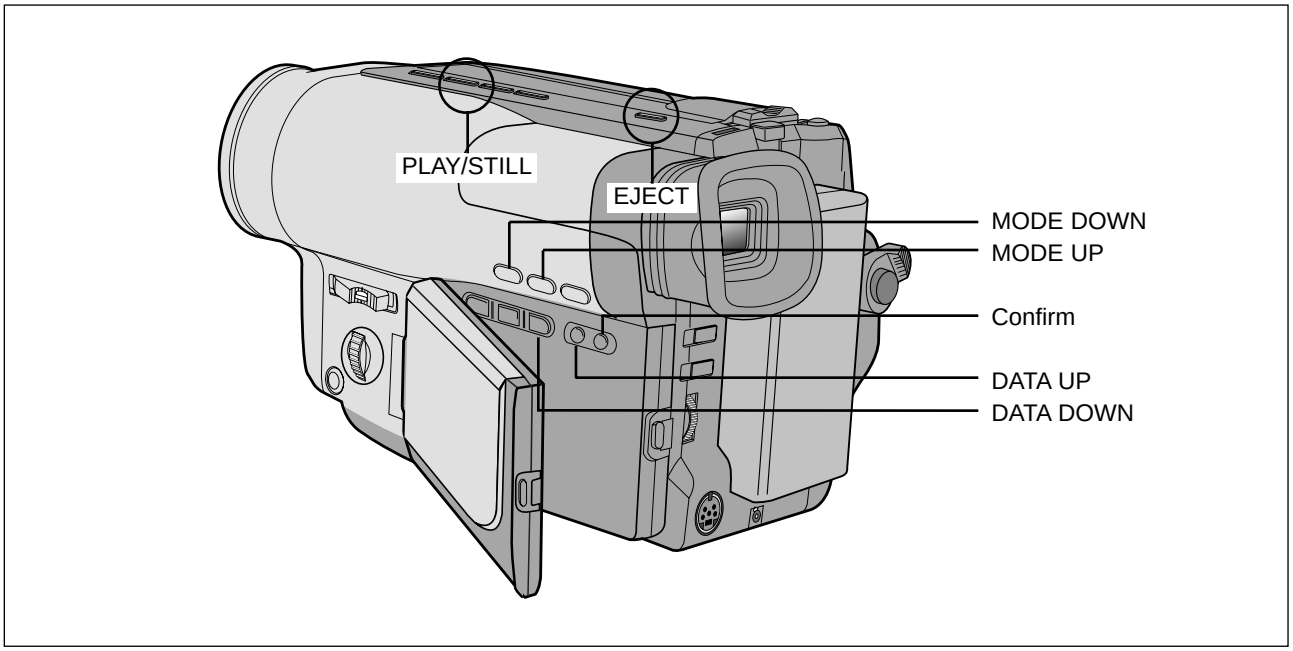
8 PLL
EPR : XX EVR : XX



Note : When XX XX is shown in service adjustment procedures, this indicates variable values.

2. The following chart shows the function of each button. In service adjustment mode, button names are different from those in customer camera function control mode. EX)ON / OFF button is the same as confirm.

Button	Function
FADE(MODE UP)	When change the adjustment mode.
BLC(MODE DOWN)	
DSE(DATA UP)	When change data value of adjust state.
TITLE(DATA DOWN)	
PROGRAM AE(CONFIRM)	Data store after finishing adjustment by “DATA UP/DATA DOWN” button



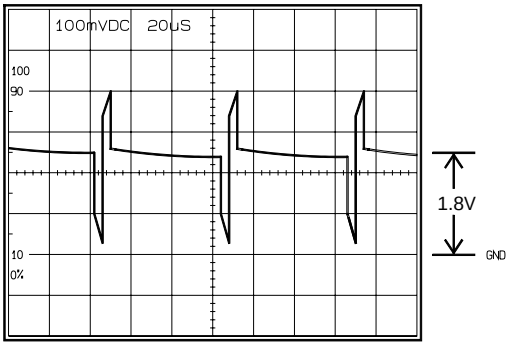
ADDRESS	MODE	NTSC	PAL	MEAN	REMARK
0	TINT	88	65	TINT	ADJUST
1	COLOR	65	75	COLOR GAIN	ADJUST
2	BRIGHT	88	88	BRIGHT	ADJUST
3	CONTRAST	60	60	CONTRAST	FIXED
4	B SUB	8A	80	B-SUB	ADJUST
5	R SUB	8A	80	R-SUB	ADJUST
6	GAMMA 1	75	75	GAMMA1 GAIN	FIXED
7	GAMMA 2	B1	B1	GAMMA2 GAIN	FIXED
8	PLL	60	60	PLL	ADJUST
9	MODE 1	02	0E	PAL/NTSC	FIXED
A	MODE 2	00	00	NORMAL/TEST	FIXED
B	MODE 3	F5	F5	HD-POSITION	FIXED

NOTE : PLL --> BRIGHT --> R-SUB --> B-SUB --> COLOR --> TINT

4-2-3 (b) ADJUSTMENT

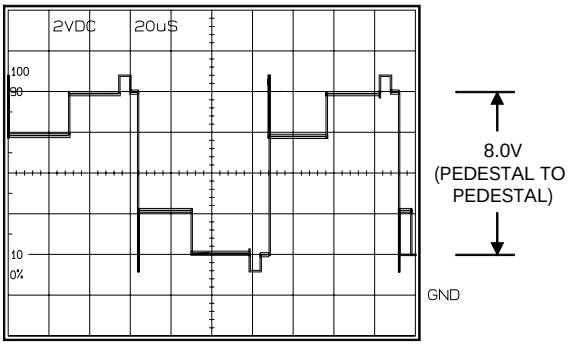
1. PLL (ADDRESS : 8.PLL)

1) Connect an multimeter probe to TP-P
2) Adjust the EVR so that DC voltage is DC1.8±0.05Vp-p.



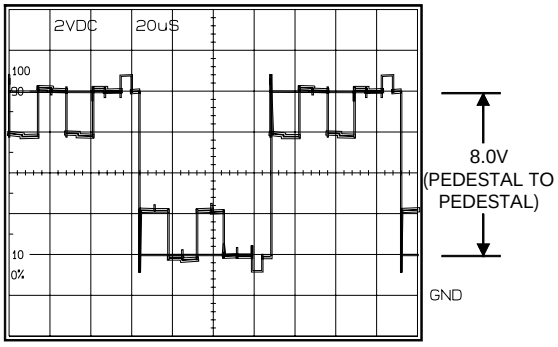
2. Brightness (ADDRESS : 2.BRIGHT)

1) Connect an oscilloscope probe to TP-G.
2) Adjust EVR so that bright(Green) level is 8.0V±0.1Vp-p (pedestal to pedestal).



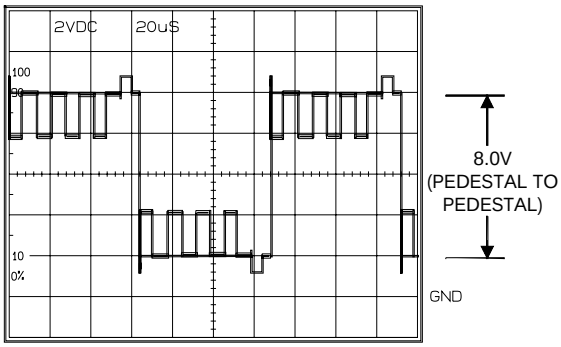
3. R-Sub Brightness (ADDRESS : 4.R-SUB)

1) Connect an oscilloscope probe to TP-R
2) Adjust the EVR so that R-OUT(Red) level is 8.0Vp-p (pedestal to pedestal).



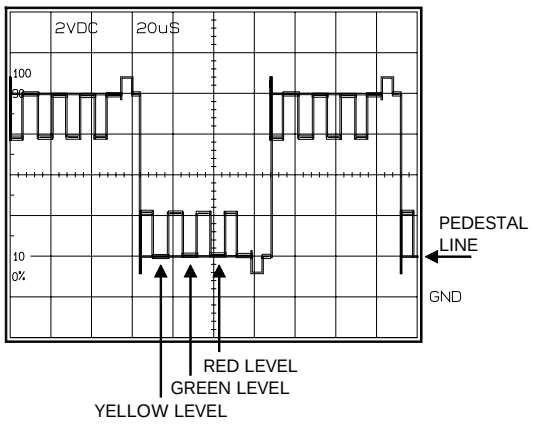
4. B-Sub Brightness (ADDRESS : 5.B-SUB)

1) Connect an oscilloscope probe to TP-B.
2) Adjust the EVR so that B OUT(Blue) level is 8.0Vp-p (pedestal to pedestal).



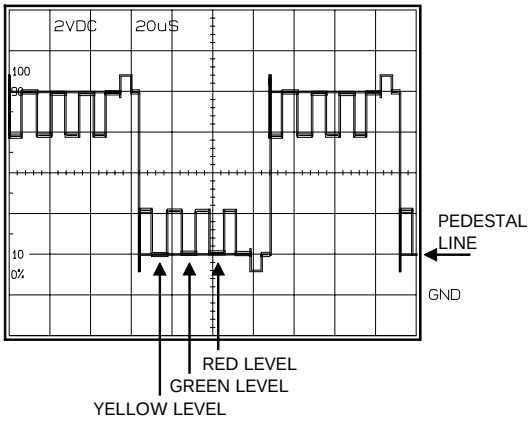
5. Color(ADDRESS : 1.COLOR)

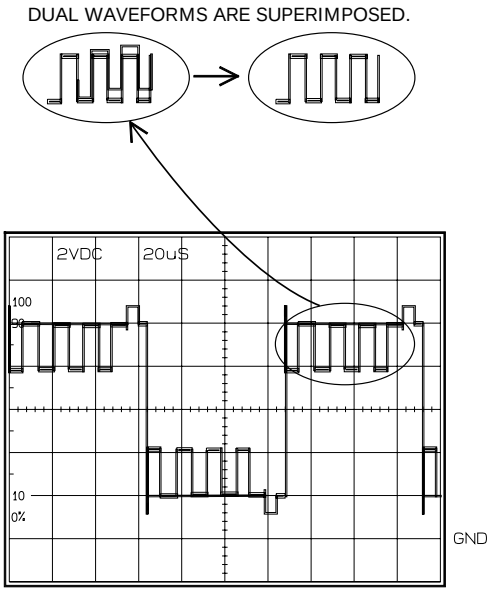
1) Connect an oscilloscope probe to TP-B.
2) Adjust the EVR so that the Yellow level is equal to the pedestal line.



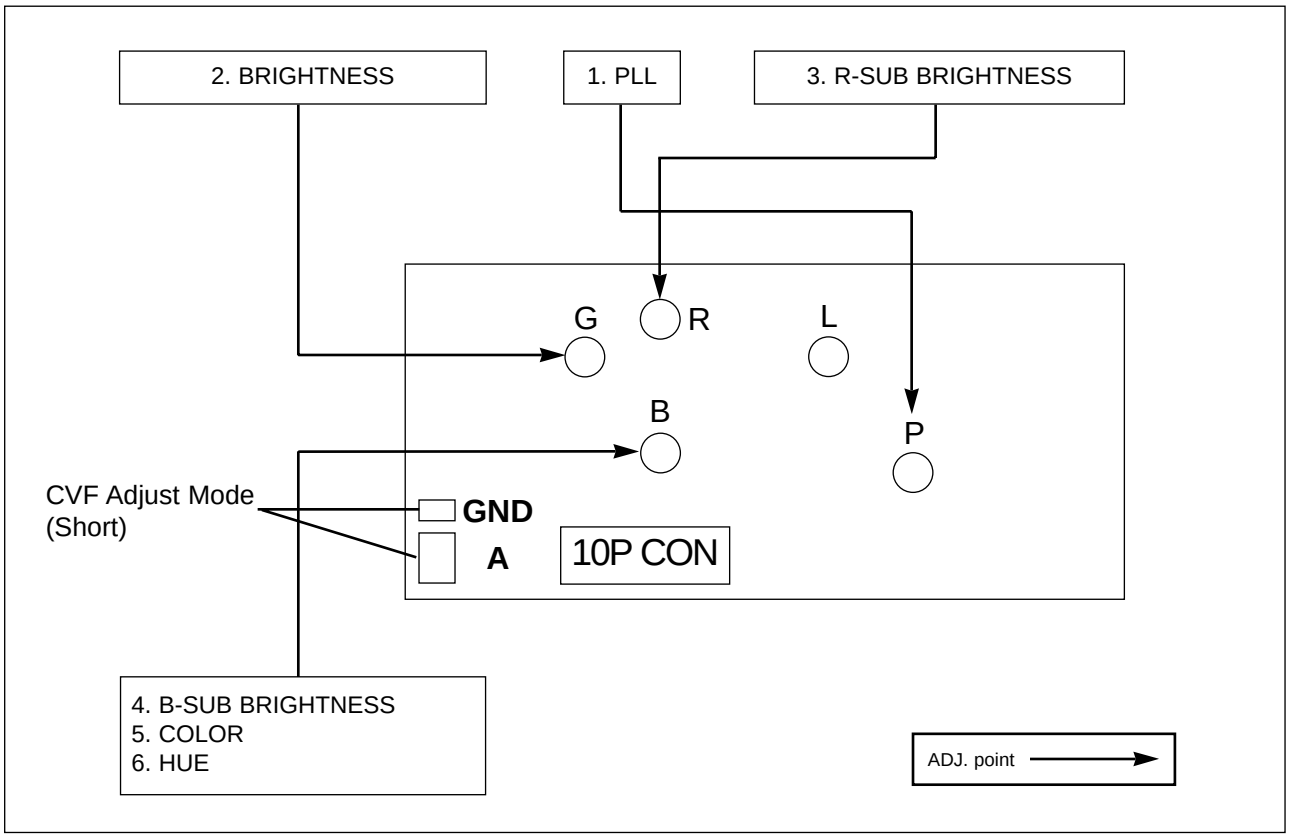
6. TINT(ADDRESS : 0.TINT)

1) Connect an oscilloscope probe to TP-B.
2) Adjust the EVR so that the dual waveforms are superimposed.(PAL MODEL)
3) Adjust the EVR so that the bright(Green) level is equal to the Red level.(NTSC MODEL)





Note : When adjusting CVF be sure to short circuit between Ground and "A"part to store the confirmed data in EEPROM when pushing ON/OFF button.



4-2-4 EVF Adjustment

Notes :

1. For EVF adjustment, use the buttons on set and remote controller.
2. After each adjustment step is completed, OSD shows “OK”.
3. EEPROM(ICV02) stores confirmed adjustment value of each adjustment step.
4. After finishing the adjustment, turn power off.

4-2-4 (a) PREPARATION

1. How to get into the EVF adjust mode.

STEP1

1. Connect the power source (battery / DC cable).
2. Set the mode switch of the camcorder to “PLAYER” position.
3. Connecting the AV JACK of the camcorder to monitor makes OSD appear.

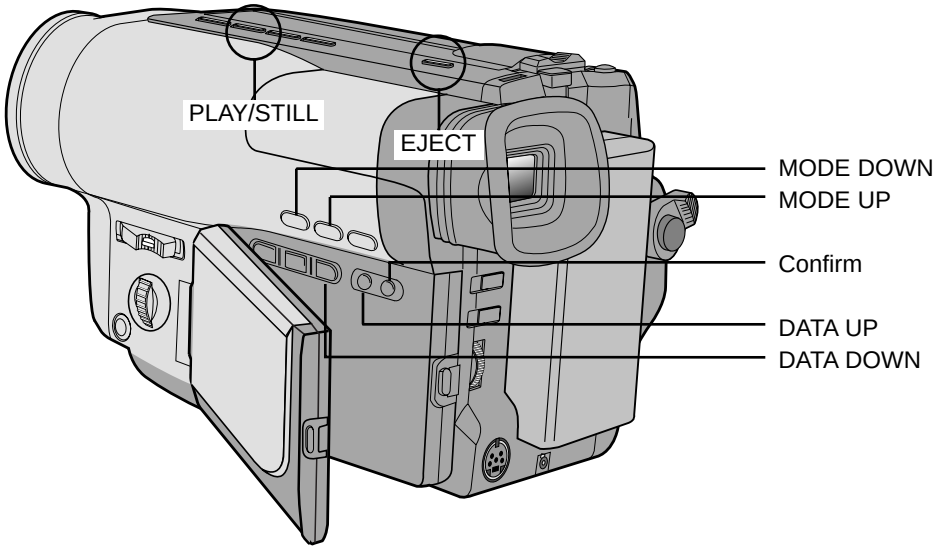
STEP2

Press and hold the “EJECT” button and “PLAY / STILL” button on the camcorder at the same time for more than 5 seconds.

0 USER BRT.
EPR : XX EVR : XX

Monitor OSD shows “0 USER BRT EPR XX. EVR XX”. Then EVF adjustment mode has been activated successfully.

Notes : "XX" indicates variable values.



Notes : When XX XX is shown in service adjustment procedures, this indicates variable values.

2. The following chart shows the function of each button.

Button	Function
FADE(MODE UP)	When change the adjustment mode.
BLC(MODE DOWN)	
DSE(DATA UP)	When change data value of adjust state.
TITLE(DATA DOWN)	
PROGRAM AE(CONFIRM)	Data store after finishing adjustment by “DATA UP/DATA DOWN” button

Notes : In service adjustment mode, button names are different from those in customer function control mode.

3. Adjustment mode table

ADDRESS	MODE	NTSC	PAL	MEAN	REMARK
0	USER BRHT	4B	4B	BRIGHT	ADJUST
1	S SUB R	80	80	R-SUB BRHT	FIXED
2	R SUB B	80	80	B-SUB BRHT	FIXED
3	CONTRAST	88	88	CONTRAST	ADJUST
4	S CONT R	99	99	R-SUB CONT	FIXED
5	S CONT B	99	99	B-SUB CONT	FIXED
6	GAMMA 2	70	70	GAMMA 2	FIXED
7	GAMMA 1	92	92	GAMMA 1	FIXED
8	ONLY 0	00	00	ONLY 00	FIXED
9	COM DC	7A	7A	VCOM	ADJUST
A	COLOR	80	80	COLOR	FIXED
B	HUE	80	80	TINT	FIXED
C	W/B LMT	1B	1B	W/B LIMIT	FIXED
D	FIL/LPF	00	00	FIL/LPF	FIXED
E	PIC/GAIN	00	00	PICTURE/GAIN	FIXED
F	MODE/PLL	0C	0C	MODE/PLL	ADJUST
10	SYNC GEN	00	00	SYNC GEN	FIXED
11	Y MIRROR	00	01	NTSC/PAL	FIXED
12	OUT INV	00	00	OUT INV	FIXED
13	X MIRROR	00	00	UP/DOWN	FIXED
14	H POSI	10	10	H-POSITION	FIXED
15	HDO OUT	00	00	HDO OUT	FIXED

4-2-4 (b) ADJUSTMENT

1. PLL

1) TP-P & EVR
1) Connect an voltmeter to TP-P
2) Adjust the EVR so that DC voltage is DC1.6±0.2Vp-p.

2. VCOM

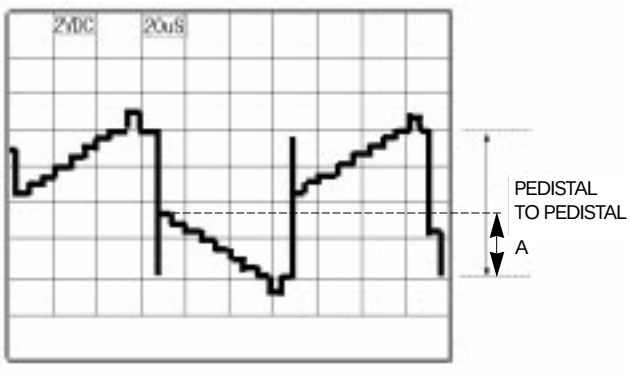
1) TP-L & EVR
2) Connect an voltmeter to TP-L.
3) Adjust the EVR so that DC voltage is 5.6±0.05Vp-p (pedestal to pedestal).

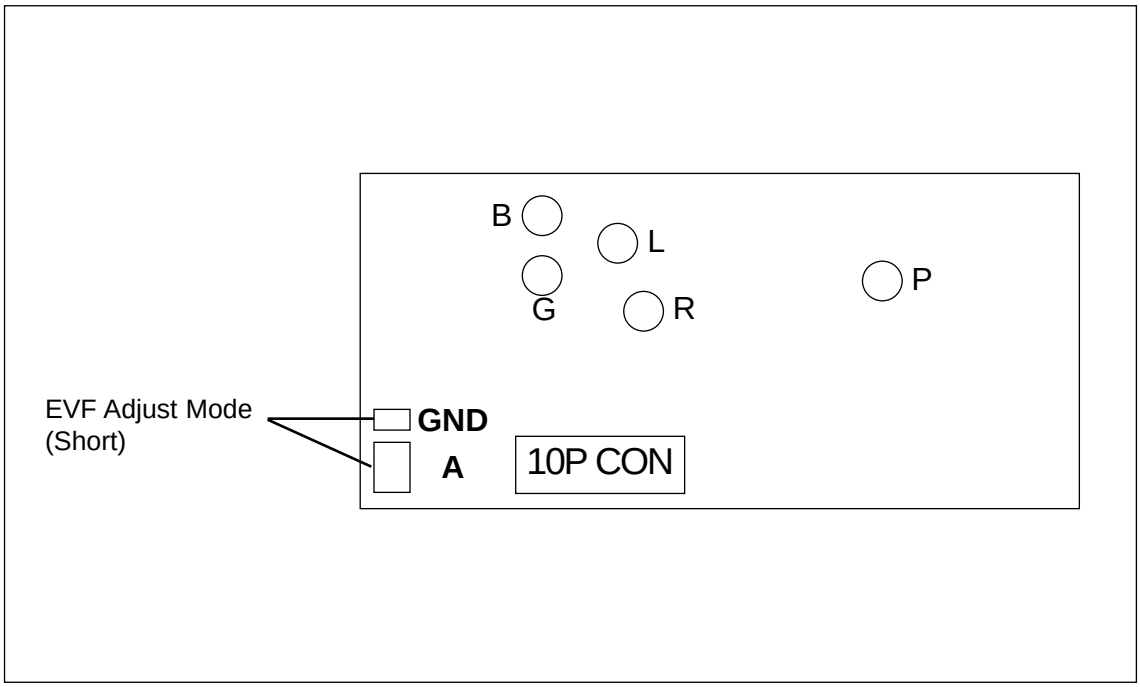
3. BRIGHTNESS

1) TP-G & EVR
2) Connect an oscilloscope probe to TP-G.
3) Adjust the EVR so that bright level is 8.0Vp-p (pedestal to pedestal).

4. CONTRAST

1) TP-B & EVR
2) Connect an oscilloscope probe to TP-B.
3) Adjust the EVR so that A level is 2.0Vp-p .





Note : When adjusting EVF be sure to short circuit between Ground and "A"part to store the confirmed data in EEPROM when pushing ON/OFF button.
After finishing the adjustment, you have to reset.

4-2-5 LCD Adjustment

Notes: For LCD adjustment, use the buttons on the video camera and the remote control.
After each adjustment step is completed, OSD shows "OK".
EEPROM(ICL202) stores confirmed adjustment value of each adjustment step.
After finishing the adjustment, turn power off.

4-2-5 (a) PREPARATION

1. How to get into the LCD adjust mode.

STEP1

1. Remove the lithum battery from camcorder.
2. Connect the power source (battery / DC cable).
3. Set the mode switch of the camcorder to "PLAYER" position.
4. Camera screen and OSD appears.

STEP2

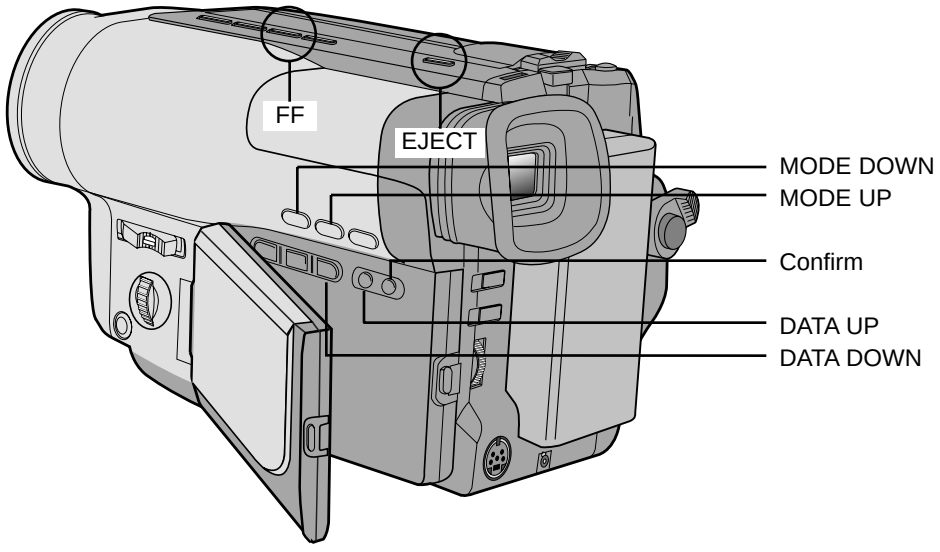
Press and hold the "EJECT" button and "FF" button on the camcorder at the same time for more than 5 seconds.

Monitor screen

A. VCO
EPR:XX EVR:XX

When monitor OSD shows as above screen, LCD adjustment mode has been activated successfully.

Note : "XX" indicates variable values.



Remote Control Button Location

2. Functions of each button on the Remote Control

Button	Function
FADE(MODE UP)	When changing the adjustment mode.
BLC(MODE DOWN)	
DSE(DATA UP)	When changing data value of adjust state.
TITLE(DATA DOWN)	
PROGRAM AE(CONFIRM)	Store data after finishing adjustment by “DATA UP/DATA DOWN” button.

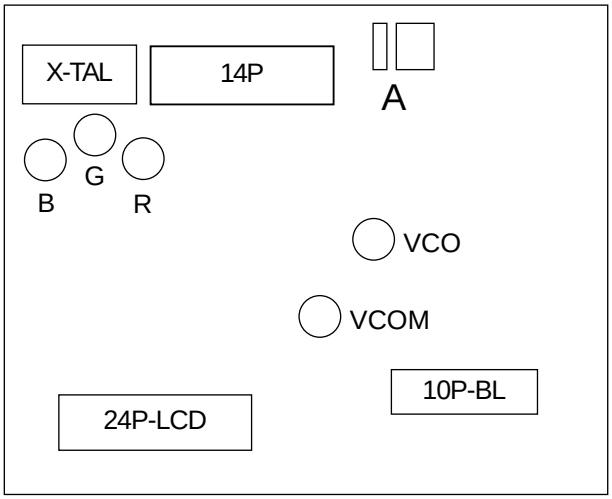
Note: In service adjustment mode, button names are different from those in customer function control mode.

3. Adjustment mode table

ADDRESS	MODE	NTSC	PAL	MEAN	REMARK
01	VCO	A0	C0	PLL	Adjust
02	VCOM	89	89	COMMON	Adjust
03	BRIGHT	97	97	BRIGHT	Adjust
04	R-SUB	A7	A7	R-SUB CONT	Adjust
05	B-SUB	A4	A4	B-SUB CONT	Adjust
06	COLOR	80	8E	COLOR	Adjust
07	TINT	00	8E	TINT	Adjust NTSC only
08	CONTRAST	96	96	CONTRAST	Fix initial value
09	GAMMA	82	82	GAMMA	Fix initial value
0A	LED CONTROL	FF	FF	LED control when powered	
0B	BRIGHT MIN	01	01	Bright variation of MIN direction for USER	
0C	BRIGHT MAX	01	01	Bright variation of MAX direction for USER	
0D	COLOR MIN	02	05	Color variation of MIN direction for USER	
0E	COLOR MAX	02	06	Color variation of MAX direction for USER	
0F	TINT MIN	00	06	Tint variation of MIN direction for USER	
10	TINT MAX	00	04	Tint variation of MAX direction for USER	
11	CHECK1	19	19	CHECK1	Fix initial value
12	CHECK2	20	20	CHECK2	Fix initial value

*The adjustment sequence is VCO->VCOM->BRIGHT->R-SUB->B-SUB->COLOR->TINT.

4. Location of Adjustment TP



Note: In LCD adjustment mode, when shorting "A" of PCB to GND and pressing the START/STOP button. Store in EEPROM. Reset after adjustment is complete.

4-2-4 (b) Adjustment

1. VCO

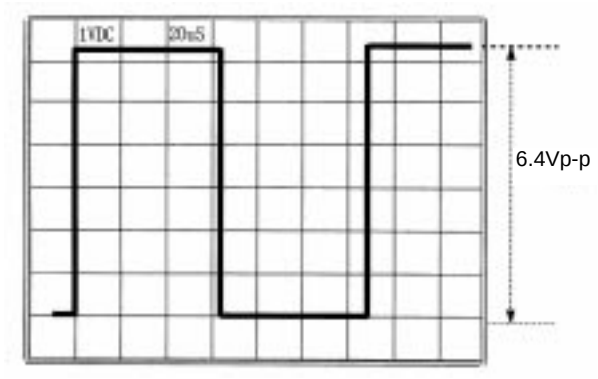
1) TP-VCO & EVR
2) Connect an voltmeter to TP-VCO.
3) Adjust the EVR so that DC voltage is DC 1.6±0.05 V.

2. VCOM

1) TP-COM & EVR
2) Connect an voltmeter to TP-COM.
3) Adjust the EVR so that DC voltage is DC 1.45±0.05 V.

3. Brightness

1) TP-COM & EVR
2) Connect an oscilloscope probe to TP-COM.
3) Adjust the EVR so that level is 6.4± 0.1 Vp-p.

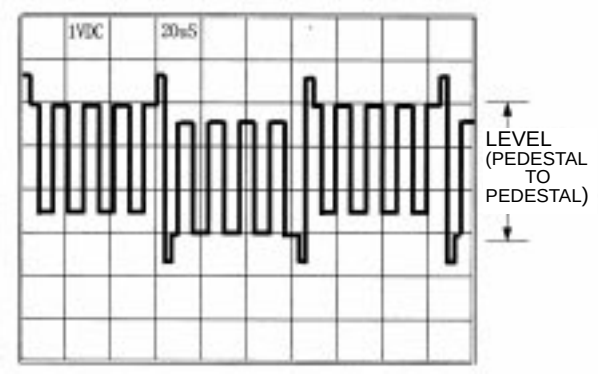


4. R-Sub Brightness

1) TP-R & EVR
2) Connect an oscilloscope probe to TP-R.
3) Adjust the EVR so that pedestal level is equal to TP-G level.

5. B-Sub Brightness

1) TP-B & EVR
2) Connect an oscilloscope probe to TP-B.
3) Adjust the EVR so that pedestal level is equal to TP-G level.



6. Color

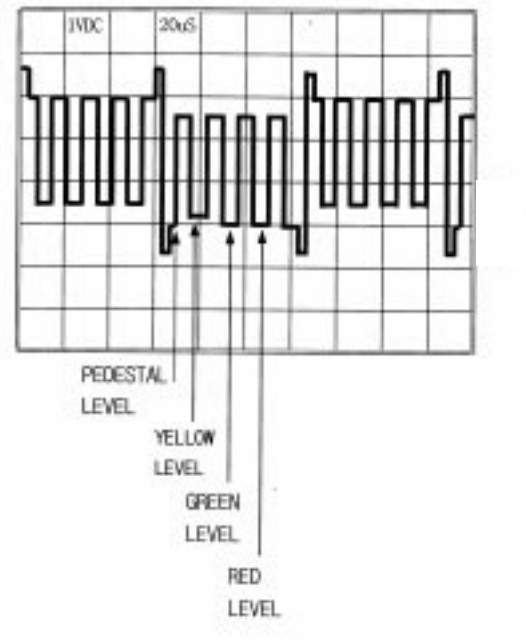
a) TP-B & EVR
b) Connect an oscilloscope probe to TP-B.
c) Adjust the EVR so that yellow level is equal to pedestal level.

7. Tint (NTSC only)

a) TP-B & EVR
b) Connect an oscilloscope probe to TP-B.
c) Adjust the EVR so that green level is equal to red level.

8. C-COM (PAL only)

a) TP-B & LL205
b) Connect an oscilloscope probe to TP-B.
c) Adjust the EVR so that red carrier level is minimized.



4-3. VCR Section Adjustment

4-3-1 Preparations

1. Equipment :

1) Monitor TV.
2) Dual trace oscilloscope of over 20MHz band, incorporates delay mode.
   (Use 10 : 1 probe unless otherwise specified.)
3) Frequency counter
4) DC power supply.
5) Alignment tape (Colour bar : SP)
6) 8mm Video Tape for record.

2. Composition of VCR P.C.Boards

1) Main PCB (DC / DC connector, system control, servo, video, audio, camera)
2) Rear PCB
3) Function PCB
4) Front PCB

3. How to get into service "**ADJUST**" mode.

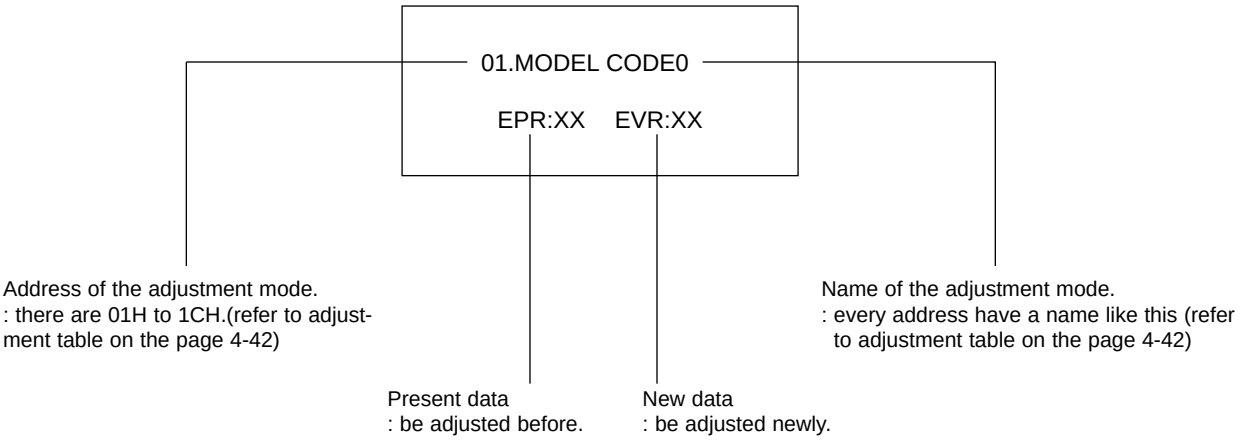
STEP 1

1. Connect the power source (battery/DC cable).
2. Set the power switch of the camcorder to PLAYER position.
3. Press the eject key to eject mode.

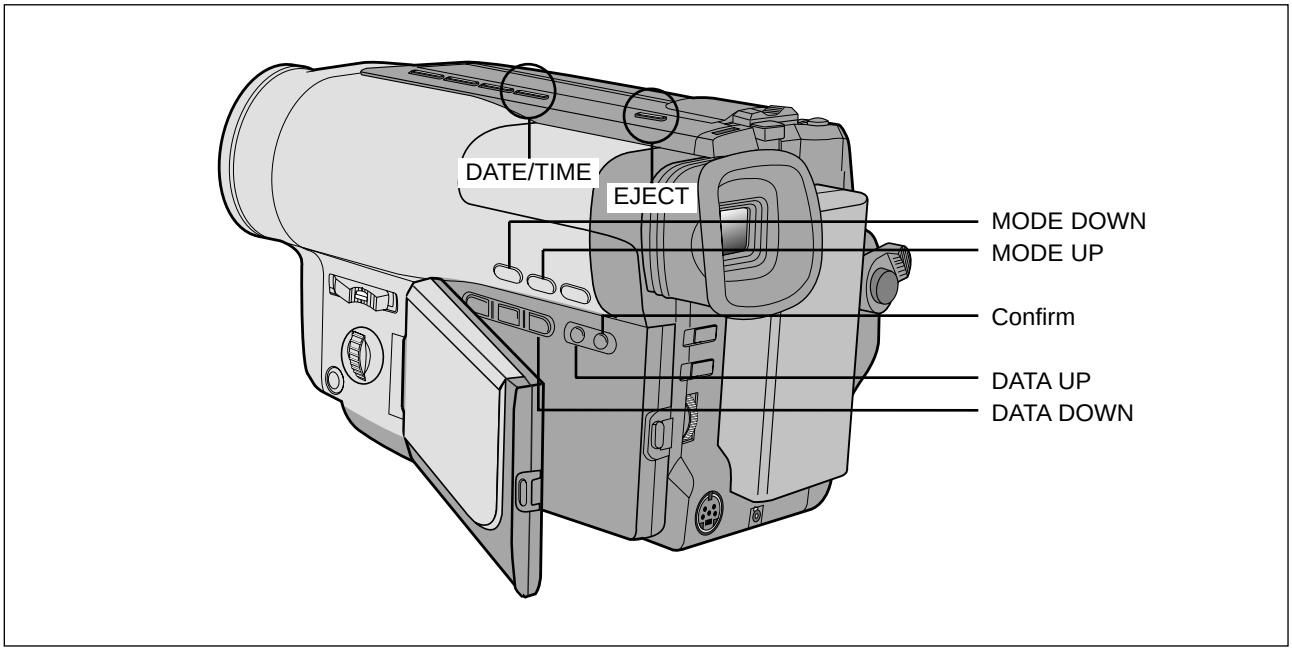
STEP 2

1. Press and hold "STOP(DATE/TIME)" button on the Camcorder and "EJECT" button on the Camcorder at the same time for more than 5 seconds.
2. If the color bar generated internally appears on the monitor and adjustment mode displayed like the figure below, VCR adjustment mode has been successfully activated.
3. Insert tape into housing ass'y and then perform the adjustments.

TV or LCD/EVF monitor


01.MODEL CODE0
EPR:XX EVR:XX
Address of the adjustment mode.
: there are 01H to 1CH.(refer to adjustment table on the page 4-42)
Name of the adjustment mode.
: every address have a name like this (refer to adjustment table on the page 4-42)
Present data
: be adjusted before.
New data
: be adjusted newly.

4. The location of function button.



Note : In service adjustment mode, button name are different from those in customer function control mode.
EX) “PROGRAM AE ” button is the same as CONFIRM.

5. If you want to finish the adjustment mode, you have to do Battery Reset.
The Battery Reset means that you pull out the power source and pull in it again.
Then, the adjustment ended and the camcorder works normally.

4-3-2 VCR Section

Note 1 : From this point forward, the structure of every adjustment is as follows.

Step	Adjustment Item
1. Mode and input signal / alignment tape 2. Test point and ADJ. part 3. Result and Remarks	ADJ. point → Test point

Note 2 : How to connect video out signal.

-Connect the video cable to ass'y A / V Jack.

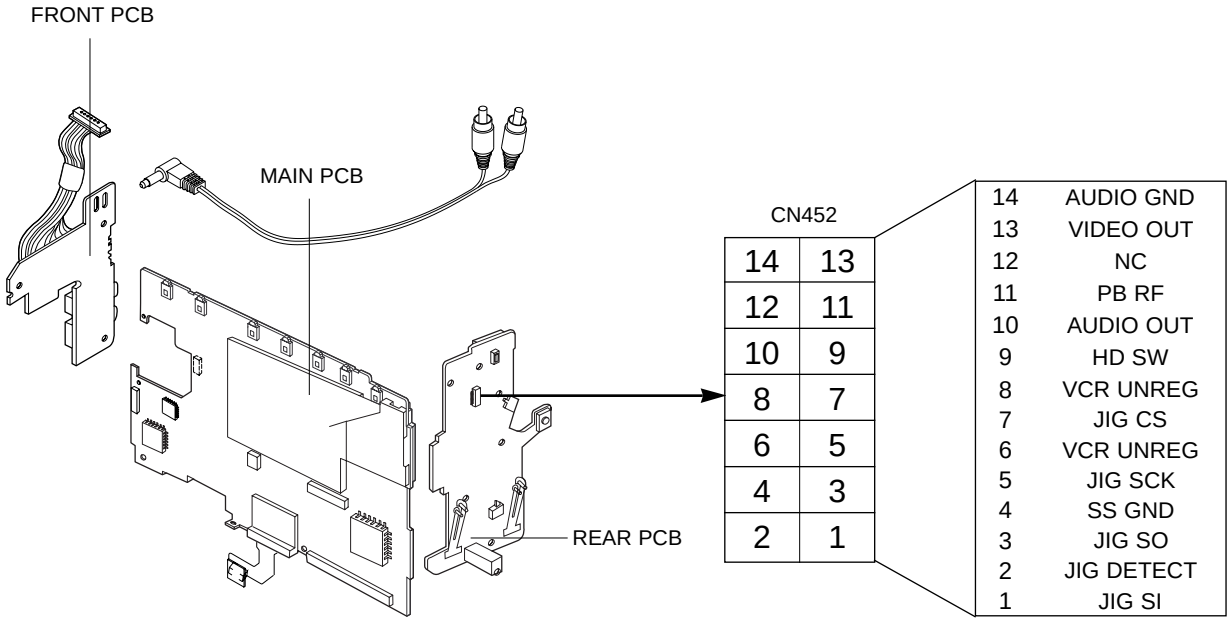


Fig. 1 Video Signal Connection

Note 3 : How to record -1. Insert a recordable tape.
-2. Press the SW474 (START / STOP) button on the Rear board in the adjustment mode.

4-3-3 Adjustment

1. Kinds of adjustment

ADDRESS	NAME	NORMAL MODEL		HI 8 MODEL	
		NTSC	PAL	NTSC	PAL
01	MODEL CODE0	Model code setting			
02	MODEL CODE1	Model code setting			
03	HD SWP	Adjustment			
04	COLOR BAR LEVEL	8B	8B	8B	8B
05	Y-EMPHASIS IN (NOR)	Adjustment			
06	PB OUT-LEVEL (NOR)	Adjustment			
07	Y-EMPHASIS IN (HI8)	-	-	Adjustment	
08	PB OUT LEVEL (HI8)	-	-	Adjustment	
09	VIDEO OUT LEVEL	Adjustment			
0A	Y-FM CARRIER (NOR)	Adjustment			
0B	Y-FM DEVIAT (NOR)	Adjustment			
0C	Y-FM CARRIER (HI8)	-	-	Adjustment	
0D	Y-FM DEVIAT (HI8)	-	-	Adjustment	
0E	AUDIO BPF-ADJ	Adjustment			
0F	C-EMPHASIS	CD	CD	A9	CD
10	WHITE CLIP (NOR)	80	80	80	80
11	REC C LEVEL	B0	99	C0	D0
12	REC Y FM LEVEL	C9	C9	A8	A8
13	PB DEL ADJ	65	65	85	85
14	D CLIP (NOR)	65	65	65	65
15	DEL ADJ	85	65	85	85
16	SMEAR CONT	99	99	90	90
17	MTQ (PB)	-	-	D0	D0
18	MTF0 (NOR)	-	-	7A	7A
19	WHITE CLIP (HI8)	-	-	60	55
1A	MTF0 (HI8)	-	-	9A	9A
1B	D CLIP (HI8)	-	-	8E	8E
1C	MODEL CODE	-	-	-	-
1D	TITLE LANGUAGE	-	-	-	-
1E	HD SWP (SUB DATA)	0C	0C	0C	0C
1F	BATTERY END LEVEL	91	91	91	91
1C	ATF REF.	-	-	-	-

2. Adjustment

* Please keep the order according to explanation.

TAPE	NONE
EQUIPMENT	POWER SOURCE
OTHER	NONE
TEST POINT	NONE
ADDRESS	01
NAME	MODEL CODE0

2-1. Model Code 0

a. Preparation

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” or “BLC(MODE DOWN)” button of FUNCTION so as to select the address 01.
e. Press the “TILTLE(DATA DOWN)/ DSE(DATA UP)” so that OSD shows“ ”ERR:XX EVR: XX” “XX” is different dependent on the model as below.

Model Name	Addressed code	Model Name	Addressed code
VP-L500	02	SCL500	02
VP-L520	02	SCL520	02
VP-L530	33	SCL530	73
VP-L530B	33	SCL550	77
VP-L550	77		

f. Be sure to press the “PROGRAM AE(CONFIRM)” button on FUNCTION to memorize setting.
g. Reset the power source so as to fix the new data to the camcorder’s EEPROM.

2-2. Model Code 1

a. Preparation
b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” or “BLC(MODE DOWN)” button of FUNCTION so as to select the address 02.
e. Press the “TITLE(DATA DOWN)/ DSE(DATA UP)” so that OSD shows“ ”ERR:XX EVR: XX” “XX” is different dependent on the model as below.

Model Name	Addressed code	Model Name	Addressed code
VP-L500	A4	SCL500	A2
VP-L520	E4	SCL520	A4
VP-L530	E4	SCL530	E4
VP-L530B	E4	SCL550	E4
VP-L550	E4		

f. Be sure to press the “PROGRAM AE(CONFIRM)” button on FUNCTION to memorize setting.
g. Reset the power source so as to fix the new data to the camcorder’s EEPROM.

2-3. Head Switching Point

: This adjustment is performed after the replacement of deck mechanism.
• Without this adjustment, there will be a noise in playback picture.

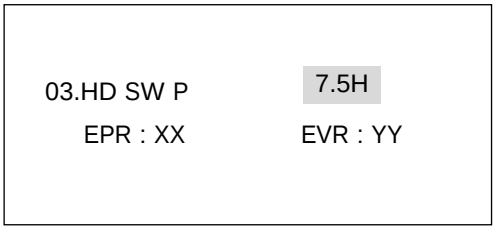
a. Preparations

TAPE	STANDARD COLOR BAR TAPE RECORDED WITH SP SPEED
EQUIPMENT	POWER SOURCE
OTHER	NONE
TEST POINT	NONE
ADDRESS	03
NAME	HD SWP

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” or “BLC(MODE DOWN)” button of FUNCTION so as to select the address 03.
e. Insert the Standard Color Bar Tape and press the “PLAY” button.

Note : If there is no video out, when you pressed the “PLAY” button, you can not adjust the Head Switching Point.
It may be caused by maladjusted VIDEO block.
In this case, adjust the VIDEO block before the Head Switching Point.
VIDEO block adjustments are 2-3~2-11.

f. The data of Head Switch is set to 7.2H~7.7H automatically.



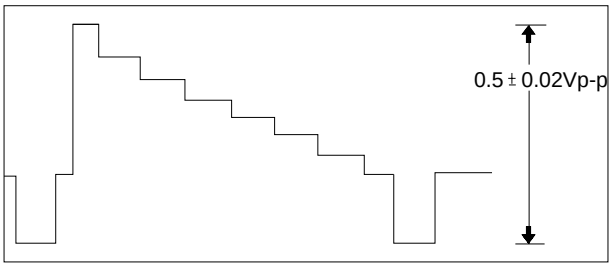
g. Be sure to press the “PROGRAM AE(CONFIRM)” button on FUNCTION to memorize setting.
h. Reset the power source so as to fix the new data to the camcorder’s EEPROM.

TAPE	8MM (NORMAL) TAPE
EQUIPMENT	OSCILLOSCOPE
OTHER	
TEST POINT	IC 201 PIN 13
ADDRESS	05
NAME	Y-EMPHASIS IN (NOR)

2-4. Adjusting Y-Emphasis Input (NORMAL)

: This adjustment is performed to set the Y level which is recorded in tape.
Maladjusted Y level impact to the next adjustment.

a. Preparations
b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the "FADE(MODE UP)" or "BLC(MODE DOWN)" button of FUNCTION so as to select the address 05.
e. Insert a Normal Tape to the camcorder.
f. Connect the oscilloscope to the addressed Test Point.
g. Press the "TITLE(DATA DOWN)/DSE(DATA UP)" button so that the IC201 PIN13 is 0.5±0.02Vp-p from SYNC tip to peak level.



h. Be sure to press the "PROGRAM AE(CONFIRM)" button on FUNCTION to memorize setting.
i. Reset the power source so as to fix the new data to the EEPROM.

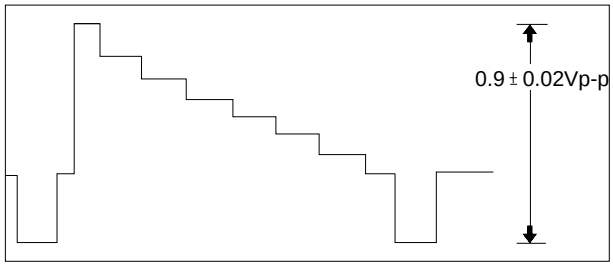
2-5. PB OUT LEVEL (NORMAL)
(Hi8 NORMAL PLAY BACK)
(NOMAL PLAY BACK OF Hi8 SET)

: This adjustment is perform to set the A/D input level to the regulated level.

a. Preparations

TAPE	STANDARD COLOR BAR TAPE RECORDED WITH SP SPEED
EQUIPMENT	OSCILLOSCOPE
TEST POINT	Q272 EMITTER
	R248 (Hi8 : NORMAL PLAYBACK)
ADDRESS	06
NAME	PB OUT-LEVEL (NOR)

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the "FADE(MODE UP)" or "BLC(MODE DOWN)" button of FUNCTION so as to select the address 06.
e. Insert the Standard Color Bar Tape and press the "PLAY" button.
f. Connect the oscilloscope to the addressed Test Point.
g. Press the "TITLE(DATA DOWN)/DSE(DATA UP)" button so that the Q272 Emitter is 0.9±0.02Vp-p from SYNC to peak level.



h. Be sure to press the "PROGRAM AE(CONFIRM)" button on FUNCTION to memorize setting.
i. Reset the power source so as to fix the new data to the camcorder's EEPROM.

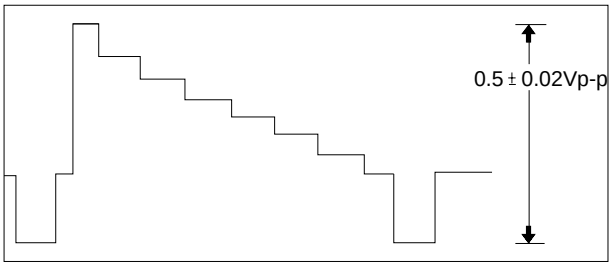
2-6. Y-EMPHASIS INPUT (HI8)

a. Preparations

TAPE	HI8 TAPE
EQUIPMENT	OSCILLOSCOPE
OTHER	NONE
TEST POINT	IC201 PIN13
ADDRESS	07
NAME	Y-EMPHASIS IN (HI8)

b. Connect a power source.
c. Get into the VCR adjustment mode.

d. Press the “FADE(MODE UP)” or “BLC(MODE DOWN)” button of FUNCTION so as to select the address 07.
e. Insert the Hi-8 tape to the camcorder
f. Connect the oscilloscope to the addressed Test Point.
g. “TITLE(DATA DOWN)/DSE(DATA UP)” button so that the IC201 PIN13 is 0.5±0.02Vp-p from SYNC tip to peak level.



h. Be sure to press the “PROGRAM AE(CONFIRM)” button on FUNCTION to memorize setting.
i. Reset the power source so as to fix the new data to the camcorder’s EEPROM.

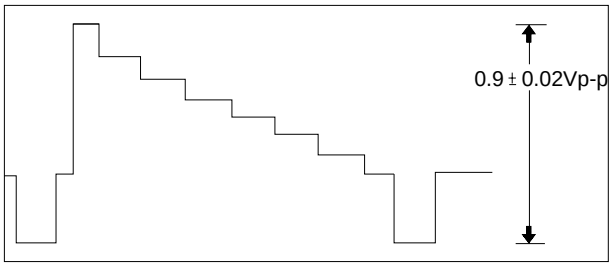
2-7. PB Output Level (Hi8)

: This adjustment is performed to set the A/D input level to the regulated level.

a. Preparations

TAPE	STANDARD COLOR BAR TAPE RECORDED WITH SP SPEED
EQUIPMENT	OSCILLOSCOPE
TEST POINT	R248
ADDRESS	06
NAME	PB OUT-LEVEL (NOR)

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” or “BLC (MODE DOWN)” button of FUNCTION so as to select the address 08.
e. Insert a Hi-8 standard color bar tape and press the PLAY button.
f. Connect the oscilloscope counter to the addressed Test Point.
g. Press the “TITLE(DATA DOWN)/DSE(DATA UP)” button so that the CN452 PIN13 is 0.9±0.02Vp-p from SYNC to peak level.



h. Be sure to press the “PROGRAM AE(CONFIRM)” button on FUNCTION to memorize setting.
i. Reset the power source so as to fix the new data to the camcorder’s EEPROM.

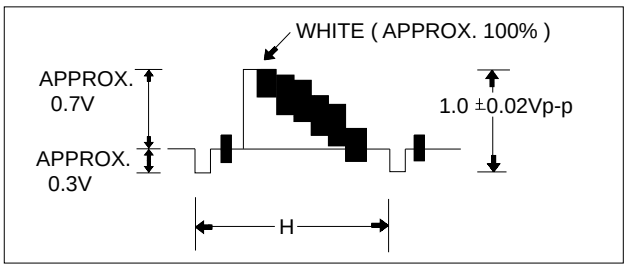
2-8. VIDEO Out Level

: This adjustment is performed to set the VIDEO out level to the regulated level.

a. Preparations

TAPE	STANDARD COLOR BAR TAPE RECORDED WITH SP SPEED
EQUIPMENT	OSCILLOSCOPE
OTHER	CONNET THE MOINTER(75Ω)
TEST POINT	CN452 PIN13
ADDRESS	09
NAME	VIDEO OUT LEVEL

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” “BLC (MODE DOWN)” button of FUNCTION so as to select the address 09.
e. Insert a standard color bar tape and press the PLAY button.
f. Connect the oscilloscope counter to the addressed Test Point.
g. Press the “TITLE(DATA DOWN)/DSE(DATA UP)” button so that the CN452 PIN13 is 1.0±0.02Vp-p from SYNC to peak level.



h. Be sure to press the “PROGRAM AE(CONFIRM)” button on FUNCTION to memorize setting.
i. Reset the power source so as to fix the new data to the camcorder’s EEPROM.

2-9. Y-FM Carrier (NOR)

: This adjustment is performed to set the sync-tip level of the composite video signal. Maladjusted Y-FM carrier impact to the playback picture, there may be black or white dot noise.

a. Preparations

TAPE	NORMAL TAPE FOR RECORDING
EQUIPMENT	OSCILLOSCOPE
OTHER	NONE
TEST POINT	IC201 PIN41
ADDRESS	0A
NAME	Y-FM CARRIER (NOR)

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” “BLC (MODE DOWN)” button of FUNCTION so as to select the address 0A.
e. Insert a Normal Tape to the camcorder.
f. Press the “START/STOP” button on the Rear board so as to set the camcorder to RECORDING mode.
g. Connect the frequency counter to the addressed Test Point.
h. Press the “TITLE(DATA DOWN)/ DSE(DATA UP)” button so as to set the frequency to 4.38MHz±0.02MHz.
i. Be sure to press the “PROGRAM AE(CONFIRM)” button of FUNCTION to memorize setting.
j. Reset the power source so as to fix the new data to the camcorder’s EEPROM.

2-10. Y-FM DEVIATION (NOR)

: This adjustment sets the Y-FM modulation level in recording. For adjustment, playback the self-recorded signal and observe the VIDEO OUT signal.

* Note : It is a little difficult to adjust because you can check the waveform in playback mode even though the adjustment is performed in VCR record mode.
So you have to do it carefully.

a. Preparations

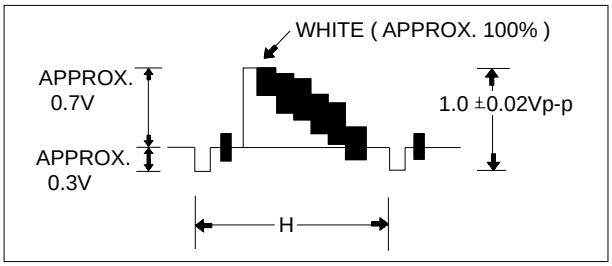
TAPE	NORMAL TAPE FOR RECORDING
EQUIPMENT	OSCILLOSCOPE
OTHER	NONE
TEST POINT	CN452 PIN13
ADDRESS	0B
NAME	Y-FM DEVIAT (NOR)

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” or “BLC(MODE DOWN)” button of FUNCTION so as to select the address 0B.
e. Insert a NORMAL Tape to the camcorder.
f. Press the “START/STOP” button on the Rear board so as to set the camcorder to RECORDING mode.
g. Record for enough time to check the waveform when you playback where you recorded in step f).
* 1 minute may be enough to check the waveform in playback mode.
h. Connect the oscilloscope to the addressed Test Point.
i. Make sure that the waveform is to be as typical wave form on the next page.
(If OK, go to step l).
j. In case of the waveform level is bigger than 1Vp-p, press the Data Down button so as to set to down the waveform level and if the waveform level smaller than 1Vp-p, press the Data Up button so as to set to up the waveform level.
k. Repeat step g), h), i).

CN452

14	13
12	11
10	9
8	7
6	5
4	3
2	1

14	VIDEO GND
13	VIDEO OUT
12	NC
11	PB RF
10	AUDIO OUT
9	HD SW
8	VCR UNREG
7	JIG CS
6	VCR UNREG
5	JIG SCK
4	SS GND
3	JIG SO
2	JIG DETECT
1	JIG SI



l. Be sure to press the “PROGRAM AE(CONFIRM)” button on FUNCTION to memorize setting.
m. Reset the power source so as to fix the new data to the camcorder’s EEPROM.2-11. Y-FM Carrier (Hi8)

2-11. Y-FM Carrier (Hi8)

: This adjustment is performed to set the sync-tip level of the composite video signal. Maladjusted Y-FM carrier impact to the playback picture, there may be black or white dot noise.

a. Preparations

TAPE	HI8 TAPE FOR RECORDING
EQUIPMENT	FREQUENCY COUNTER
OTHER	NONE
TEST POINT	IC 201 PIN 13
ADDRESS	OC
NAME	Y-FM CARRIER (HI-8)

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” or ”BLC(MODE DOWN)” button of FUNCTION so as to select the address OC.
e. Insert aHi-8 Tape to the camcorder.
f. Press the “START/STOP” button on the Rear board so as to set the camcorder to RECORDING mode.
g. Connect the frequency counter to the addressed Test Point.
h. Press the “TITLE(DATA DOWN)/DSE(DATA UP)” button so as to set the frequency to 5.99MHz ±0.02MHz
i. Be sure to press the “P.AE(CONFIRM)” button on FUNCTION to memorize setting.
j. Reset the power source so as to fix the new data to the camcorder’s EEPROM.

2-12. Y-FM Deviation (Hi8)

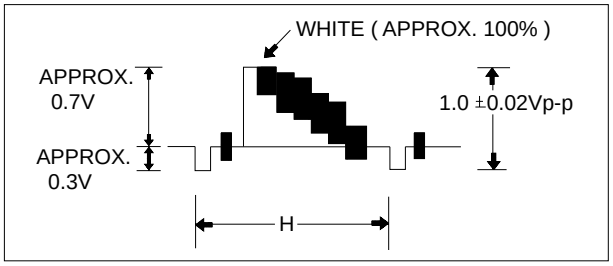
: This adjustment sets the Y_FM modulation level in recording. For adjustment, playback the self-recorded signal and observe the VIDEO OUT signal.

Note : It is a little difficult to adjust because you can check the waveform in playback mode even though the adjustment is performed in VCR record mode.
So you have to do it carefully.

a. Preparations

TAPE	HI-8 TAPE FOR RECORDING
EQUIPMENT	OSCILLOSCOPE
OTHER	NONE
TEST POINT	CN452 PIN13
ADDRESS	OD
NAME	Y-FM DEVIAT (HI8)

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” or “BLC(MODE DOWN)” button of FUNCTION so as to select the address OD.
e. Insert a Hi-8 Tape to the camcorder.
f. Press the “START/STOP” button on the Rear board so as to set the camcorder to RECORDING mode.
g. Record for enough time to check the waveform when you playback where you recorded in step f).
* 1 minute may be enough to check the waveform in playback mode.
i. Make sure that the waveform is to be as below. (If OK, go to step l).
j. In case of the waveform level is bigger than 1Vp-p, press the Data Down button so as to set to down the waveform level and if the waveform level smaller than 1Vp-p, press the Data Up button so as to set to up the waveform level.



k. Repeat step g), h), i).

l. Be sure to press the “PROGRAM AE(CONFIRM)” button on FUNCTION to memorize setting.
m. Reset the power source so as to fix the new data to the camcorder’s EEPROM.

2-13. BAND Pass Filter

: This adjustment is performed to set the bandwidth of the 1.5MHz BPF.
By this adjustment, we can playback the audio without distortion.

a. Preparations

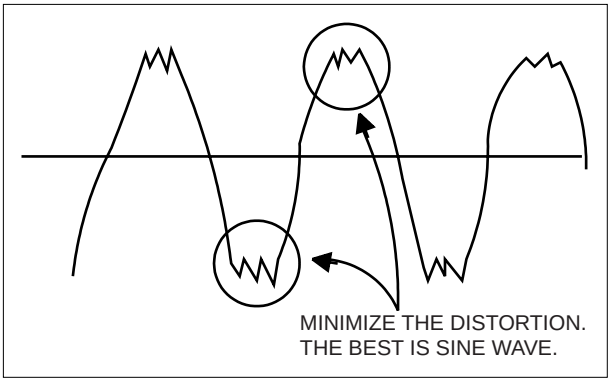
TAPE	STANDARD COLOR BAR TAPE(MONAURAL)
EQUIPMENT	OSCILLOSCOPE
OTHER	NONE
TEST POINT	CN452 PIN 10
ADDRESS	0E
NAME	BPF ADJ

b. Connect a power source.
c. Get into the VCR adjustment mode.
d. Press the “FADE(MODE UP)” or ”BLC(MODE DOWN)” button of FUNCTION so as to select the address 0E.
e. Insert the Standard Color Bar Tape(monaural) and press the “PLAY” button.
f. Connect the oscilloscope to the addressed Test Point.
g. Press the “TITLE(DATA DOWN)/DSE(DATA UP)” button so as to set the waveform to be as below.

CN452

14	13
12	11
10	9
8	7
6	5
4	3
2	1

14	VIDEO GND
13	VIDEO OUT
12	NC
11	PB RF
10	AUDIO OUT
9	HD SW
8	VCR UNREG
7	JIG CS
6	VCR UNREG
5	JIG SCK
4	SS GND
3	JIG SO
2	JIG DETECT
1	JIG SI



h. Be sure to press the “PROGRAM AE(CONFIRM)” button on FUNCTION to memorize setting.
i. Reset the power source so as to fix the new data to the EEPROM.